MILAN BY TRANSITION NETWORKS®

# MIL-SM2401MAF

## 24-Port 10/100 BASE-TX POE
## Two combo ports
## 10/100/1000BASE-T/1000Base-X SFP
## Advanced Managed Switch

# User Guide

Regulatory Approval
- FCC Class A
- UL 1950
- EN60950
- CE
- EN55022 Class A
- EN55024

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EN61000-X - Electromagnetic Immunity
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- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CE Mark Warning**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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# Introduction

The 24 10/100TX plus 2 SFP/Copper managed POE switch is a multi-port Switch that can be used to build high-performance switched workgroup networks. This switch is a store-and-forward device that offers low latency for high-speed networking and allows the switch to auto-learn and store source address in an 8K-entry MAC address table. The switch is targeted at workgroup, department or backbone computing environment.

The 24 10/100TX plus 2 SFP/Copper managed POE switch has 24 auto-sensing 10/100Base-TX RJ-45 ports and all port support POE injector function. It has 2 auto detect Giga port for higher connection speed. Also, the switch provides one extra 48V DC power input for the power supply input connection.

## Features

- 24 10/100 plus 2 SFP /RJ-45 combo switch with 24 POE injector and build in 200W AC power
- Confirms to IEEE802.3 10BASE-T, 802.3u 100BASE-TX/FX, 802.3ab 1000BASE-T, 802.3z Gigabit fiber, 802.3af power over Ethernet
- Provides extra DC 48V input with redundant function and management power status through RS-232 port
- High back-plane bandwidth 8.8Gbps
- Rapid spanning tree IEEE802.1w (option)
- IGMP snooping and IGMP Query mode for Multi-media application
- Port mirror and bandwidth control
- Supports GVRP function
- End point insert mode remote power feeding
- IEEE802.3x Flow control
  - Flow control for full duplex
  - Backpressure for half duplex

- Support Port Based V LAN /802 .1Q Tag VLAN
- Support IEEE802.3ad Port trunk with LACP
- Support Spanning tree protocol IEEE 802.1d
- Supports IEEE 802.1p class of service
- Support IEEE 802.1x user authentication
- Support TACACS+ (option)
- Support Broadcast storm filter
- Support DHCP client
- Support SNTP
- Support System event log
- Support command line interface management
- Management by Web/SNMP/Telnet/Console
- On line extra power supply testing through RS-232 port

## Software Features

| | |
|---|---|
| **Management** | SNMP management, Telnet management, web management, RS-232 terminal console for command line interface management |
| **SNMP MIB** | RFC 1157 SNMP, RFC 1213 MIB II, RFC 1643 Ethernet like, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, private MIB, RFC 1628 UPS MIB, RFC3621 Power Ethernet MIB |
| **Type of Trap** | Cold start, warm start, link down, link up, authorization fail, Trap station up to 3. |

| | |
|---|---|
| **RFC Standard** | RFC 2030 SNTP, RFC 2821 SMTP (option), RFC 1492 TACACS+ (option), RFC 1215 Trap, RFC 1757 RMON 1 |
| **Software Upgrade** | TFTP and console firmware upgradeable. |
| **Port Trunk** | Support IEEE802.3ad with LACP function. Up to 7 trunk groups and group member up to 4. The trunk port within 24-port 10/100TX and 2 auto SFP/Copper ports. |
| **Spanning Tree** | IEEE802.1d spanning tree, IEEE802.1w rapid spanning tree. |
| **VLAN** | Port based VLAN<br>IEEE802.1Q Tag VLAN<br>IEEE802.1v Protocol VLAN (IP, IPX,..)<br>The static VLAN groups up to 256 and dynamic VLAN groups up to 2048, the VLAN ID can be assigned from 1 to 4094. |
| **Class of Service** | Per system supports high and low queues. The priority service rule: first come first service, all High before Low, WRR for High or low weight. |
| **Port Based Priority** | Support 3 settings: “Disable, Low or High priority”. When set to “Disable”, the income packet will follow QOS policy; Otherwise, the packet will follow port priority setting to “High/Low” queue. |

| | |
|---|---|
| **IGMP** | It supports IGMP snooping for multimedia application and supports 256 groups |
| **Port Security** | It supports ingress and egress MAC address filter and static source MAC address lock. |
| **Port Mirror** | Global system supports 3 mirroring types: “RX, TX and Both packet”. The maximum of port mirror entries is up to 25. |
| **Bandwidth Control** | Per port supports bandwidth control. Per level 100Kbps. |
| **802.1x Authentication** | Support IEEE802.1x User-Authentication and can report to RADIUS server.<br>■ Reject<br>■ Accept<br>■ Authorize<br>■ Disable |
| **DHCP** | DHCP client |
| **Packet filter** | Broadcast storm filter |
| **System setup and control** | System calibrate, AC power line frequency rejection, IEEE 802.3af resistor range adjust |

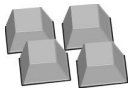
| | |
|---|---|
| **Fault status detect** | Null: no PD present<br>Overload: current support over 475mA @ DC 48V and over 50 milliseconds<br>DR fail: PD discovery resistor is not in the limited range |
| **Parametric information** | It will show current PD parameters, it include Discover-resistor detected value, current, voltage, power consumption, classification current and determined class |
| **Port configuration control** | Port Disable / Enable.<br>PD detect control (enable/disable), Classification detect control (enable/disable), DC disconnect detect control |
| **Mode status** | System detects status, it will show I –sample, V-sample and R-detect. |
| **NTP** | Supports RFC 2030 Simple Network Time Protocol (option) |
| **SMTP** | Supports RFC2821 Simple Mail Transfer protocol (option) |
| **System Log** | System Log record up to 1000 entries |
| **Power monitor** | Support power supply monitoring function for AC power, DC power, fan status<br>3 types of power supply can be installed with POE switch, POW-DPW, POE-SPW, and POE-UPW. |
| **Power testing** | Support test function to testing power supply |

# Package Contents

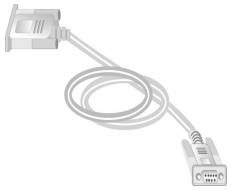
Unpack the contents of the 24 10/100TX plus 2 SFP/Copper managed POE switch and verifies them against the checklist below.

- 24 10/100TX plus 2 SFP/ Copper managed POE switch
- Power Cord
- Four Rubber Feet
- Rack-mounted kit
- RS-232 cable
- User Manual

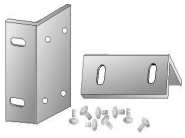
24 10/100TX plus 2 SFP/Copper managed POE switch



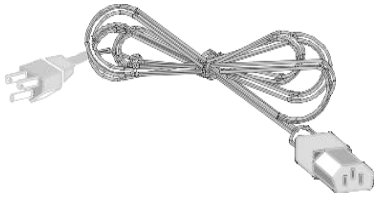
**Four Rubber Feet**



**RS-232 Cable**



Rack-mounted Kit



Power Cord

User Manual

Package Contents

Compare the contents of your 24 10/100TX plus 2 SFP/Copper managed POE switch package with the standard checklist above. If any item is missing or damaged, please contact your local dealer for service.

# Hardware Description

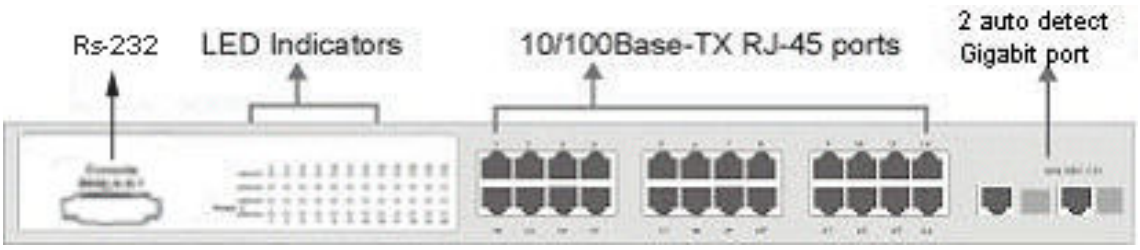
This chapter describes the hardware of the 24 10/100TX plus 2 SFP/Copper managed POE switch and gives a physical and functional overview of the Switch.

## Physical dimensions

The 24 10/100TX plus 2 SFP/Copper managed POE switch's physical dimensions are **440mmx 280mm x 44mm (Lx W x H)**

## Front Panel

The front panel of the 24 10/100TX plus 2 SFP/Copper managed POE switch consists of 24x 10/100Base-TX RJ-45 ports (Auto MDI/MDIX), 2 auto detect Giga ports, and one console port. The LED Indicators are also located on the front panel of the Switch.



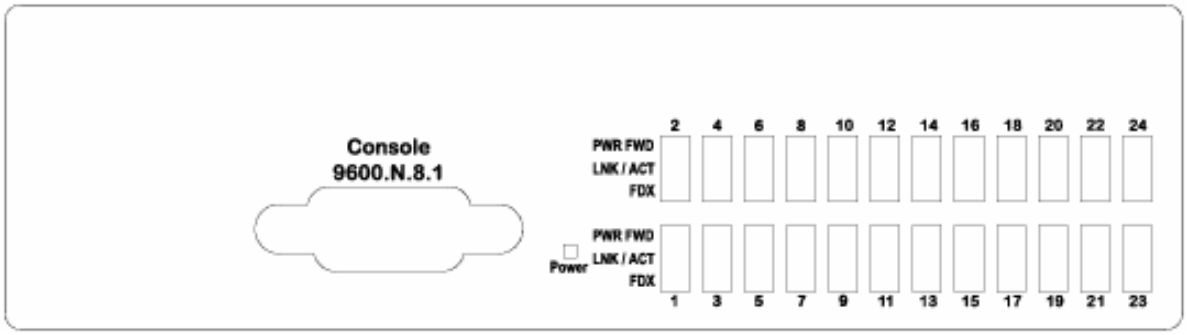

Front panel of 24 10/100TX plus 2 SFP/Copper managed POE switch

- **RJ-45 Ports (Auto MDI/MDIX):** 24x 10/100 N-way auto-sensing for 10Base-T or 100Base-TX connections.
- **2 Gigabit combo ports:** 2 auto detect 10/100/1000Base-TX UTP or 1000Base-X SFP

## LED Indicators

The LED indicators provide a real-time indication of systematic operation status. There are three LED-Indicators (Link/Activity, Full duplex, power forwarding) for each UTP port and one power LED for the system unit. The following table provides descriptions of the

LED statuses and meaning.




LED indicators

| LED | Status | Description |
|---|---|---|
| **Power** | Green | Power On |
| | Off | Power is not connected |
| **LNK/ACT** | Green | The port is connecting with the device. |
| | Blinks | The port is receiving or transmitting data. |
| | Off | No device attached. |
| **FDX** | Orange | The port is operating in Full-duplex mode. |
| | Off | In half-duplex mode |

| | | |
|---|---|---|
| **Power Forwarding** | Green | The POE Injector function is on and power is forwarding the attached PD device. |
| | Off | The POE injector function disables. |
| **1000(Giga port)**<br>**25 & 26 port** | Green | In 1000Mbps connection speed |
| **100(Giga port)**<br>**25 & 26 port** | Orange | In 100Mbps connection speed |
| **LNK/ACT (Giga port)**<br>**25 & 26 port** | Green | The port is connecting with the device. |
| | Blink | The port is receiving or transmitting data. |
| | Off | No device attached |
| **FDX/COL (Giga port)**<br>**25 & 26 port** | Orange | The port is operating in Full-duplex mode |
| | Blink | Collision of Packets occurs in the port |
| | Off | In half-duplex mode |

## Rear Panel

The two fans, two console ports, and the 3-pronged power plugs are located at the rear panel of the 24 10/100TX plus 2 SFP/Copper managed POE switch as shown in figure. The switch also provides one DC 48V input for the extra power connection support and one DC 48V internal power supply for the power redundant function. The two-console ports use for connecting with UPS device to manage UPS device or connecting with the power supply device to manage it.

The rear panel of 24 10/100TX plus 2 SFP/Copper managed POE switch

## Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface where you put your switch should be clean, smooth, level and sturdy. Make sure there is enough clearance around the switch to allow attachment of cables, power cord and allow air circulation.

### Attaching Rubber Feet

A. Make sure mounting surface on the bottom of the switch is grease and dust free.
B. Remove adhesive backing from your rubber feet.
C. Apply the rubber feet to each corner on the bottom of the switch. These footpads can prevent the switch from shock/vibration.

## Rack-mounted Installation

The switch come with a rack-mounted kid and can be mounted in an EIA standard size, 19-inch Rack. The Switch can be placed in a wiring closet with other equipment.
Perform the following steps to rack mount the switch:

A. Position one bracket to align with the holes on one side of the switch and secure it

with the smaller bracket screws. Then attach the remaining bracket to the other side of the Switch.

B. After attached both mounting brackets, position the 24 10/100TX plus 2 SFP/Copper managed POE switch in the rack by lining up the holes in the brackets with the appropriate holes on the rack. Secure the switch to the rack with a screwdriver and the rack-mounting screws.

**[Note]** For proper ventilation, allow about at least 4 inches (10 cm) of clearance on the front and 3.4 inches (8 cm) on the back of the Switch. This is especially important for enclosed rack installation.

## Power On

Connect the power cord to the power socket on the rear panel of the Switch. The other side of power cord connects to the power outlet. The internal power supply of the Switch works with voltage range of AC in the 100-240VAC, frequency 50~60Hz. Check the power indicator on the front panel to see if power is properly supplied.

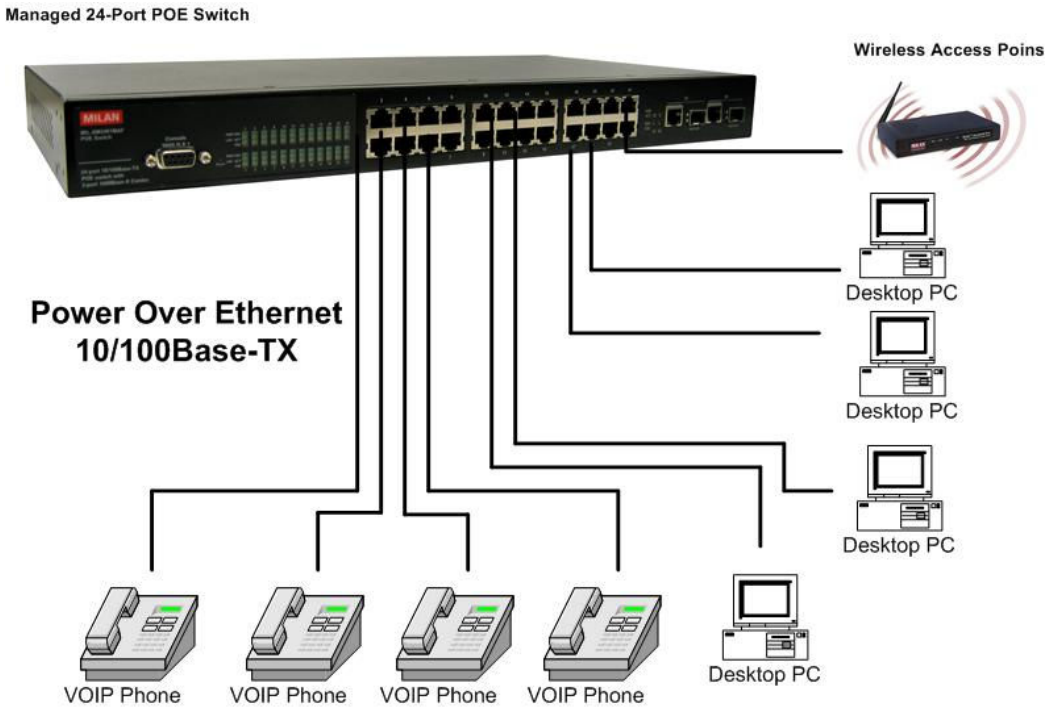
# Network Application

PC, workstations, Wireless Access Points and Voice over IP Phones can communicate each other by directly connecting with 24 10/100TX plus 2 SFP/Copper managed POE switch.

By using Uplink port, the Switch can connect with another switch or hub to interconnect other small-switched workgroups to form a larger switched network. Meanwhile, you can also use fiber ports to connect switches. The distance between two switches via fiber cable can be up to 550 m (multi-mode fiber) or 10 kilometer (single-mode fiber).

## Small Workgroup

The 24 10/100TX plus 2 SFP/Copper managed POE switch can be used as a standalone switch to which personal computers, VOIP Phones and WAPs, are directly connected.

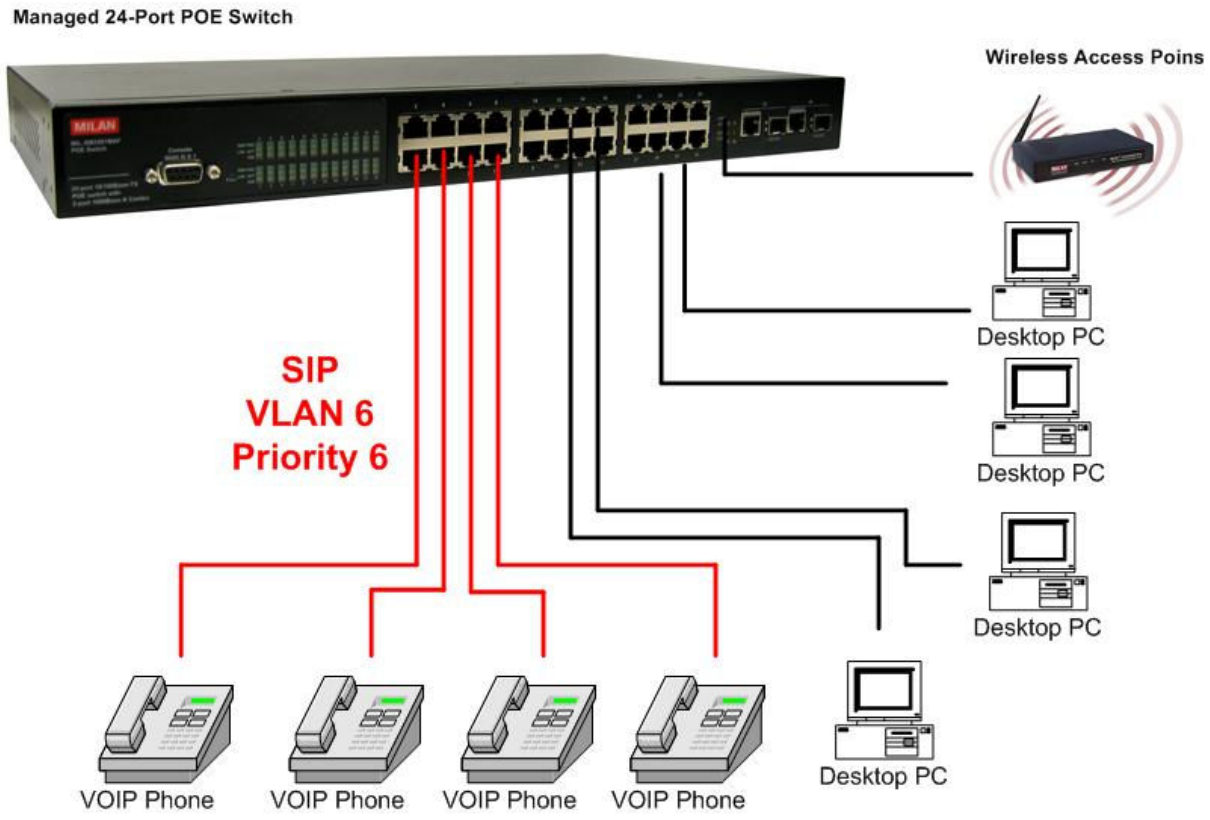



Small Workgroup Application

## Segment workgroup

For enterprise networks where large data broadcasts are constantly processed, this switch is an ideal solution for multiple IP services running over the same network.

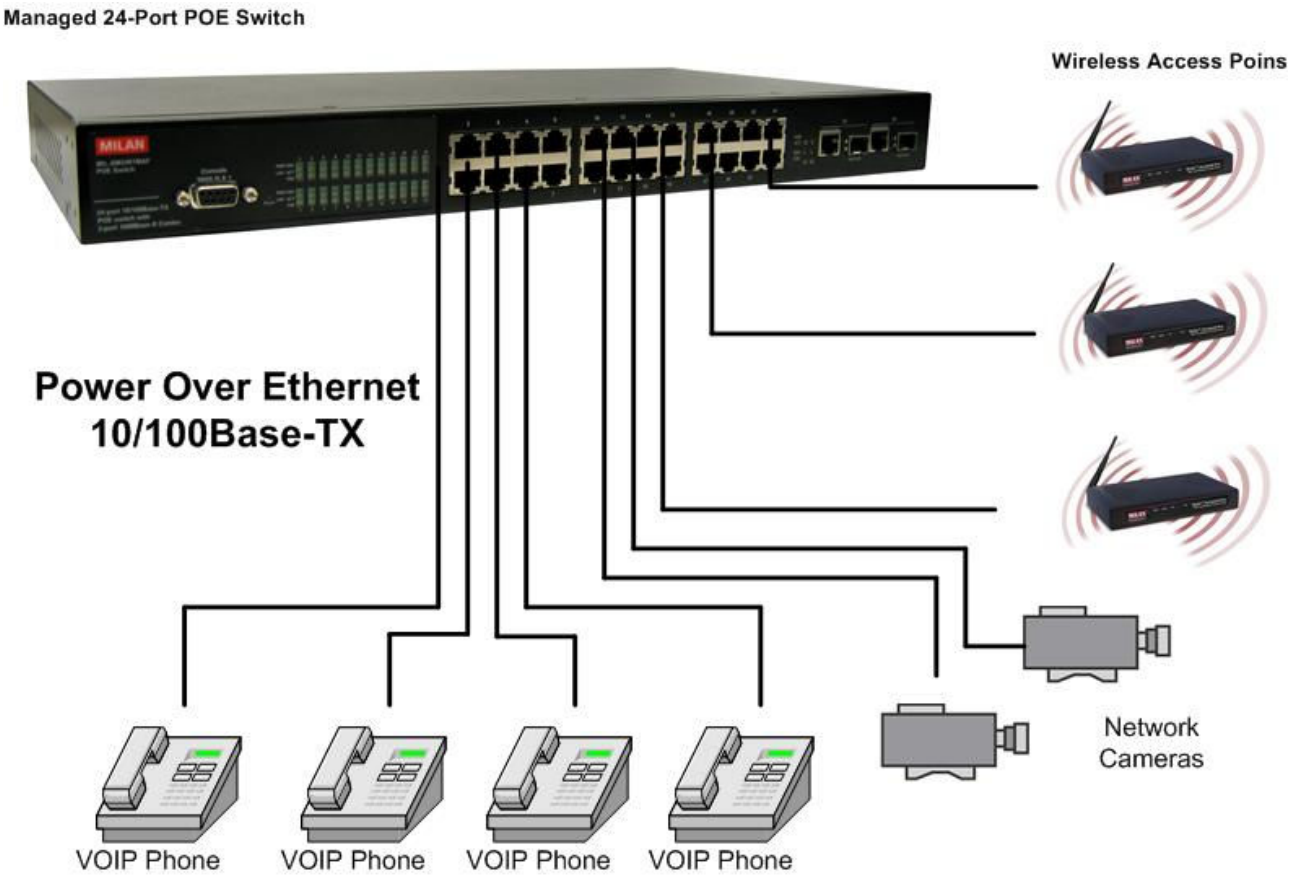
In the illustration below, you can now interconnect VOIP phones, PCs and WAPs, segment them and prioritize mission critical traffic.




Segment workgroup Application

## Power over Ethernet Application

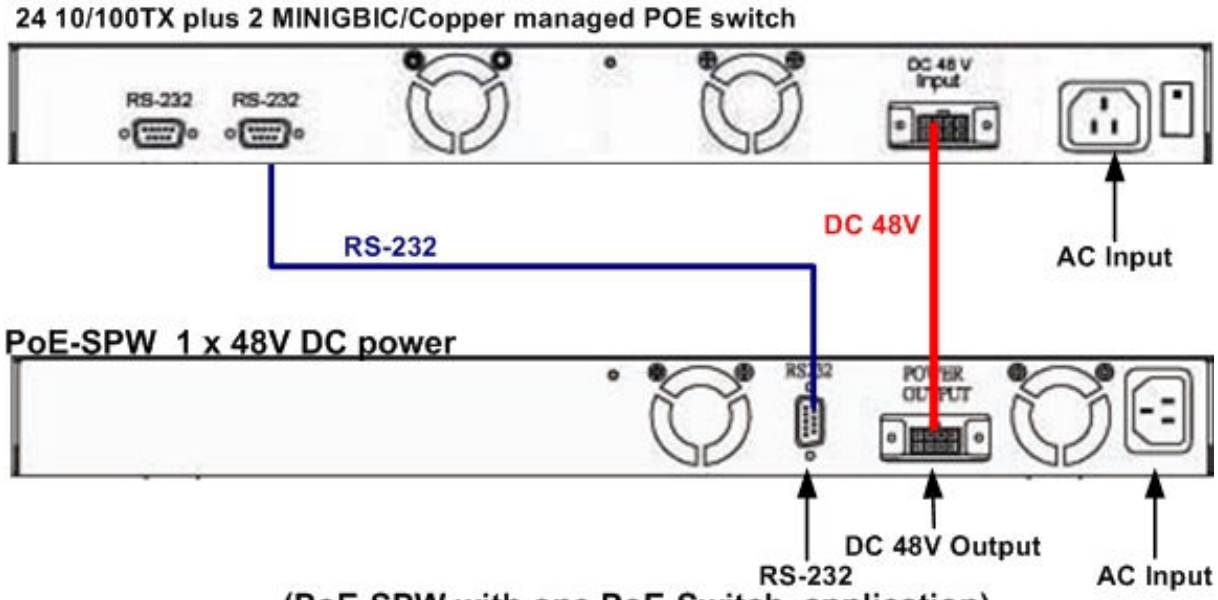
The 24 10/100TX plus 2 SFP/Copper managed POE switch has POE injector function on each Ethernet port that can provide the power to the PD device, such as AP or switch. It can solve the problem of the PD device position limitation for power supply. The following figure is an example of network application for Power over Ethernet application.



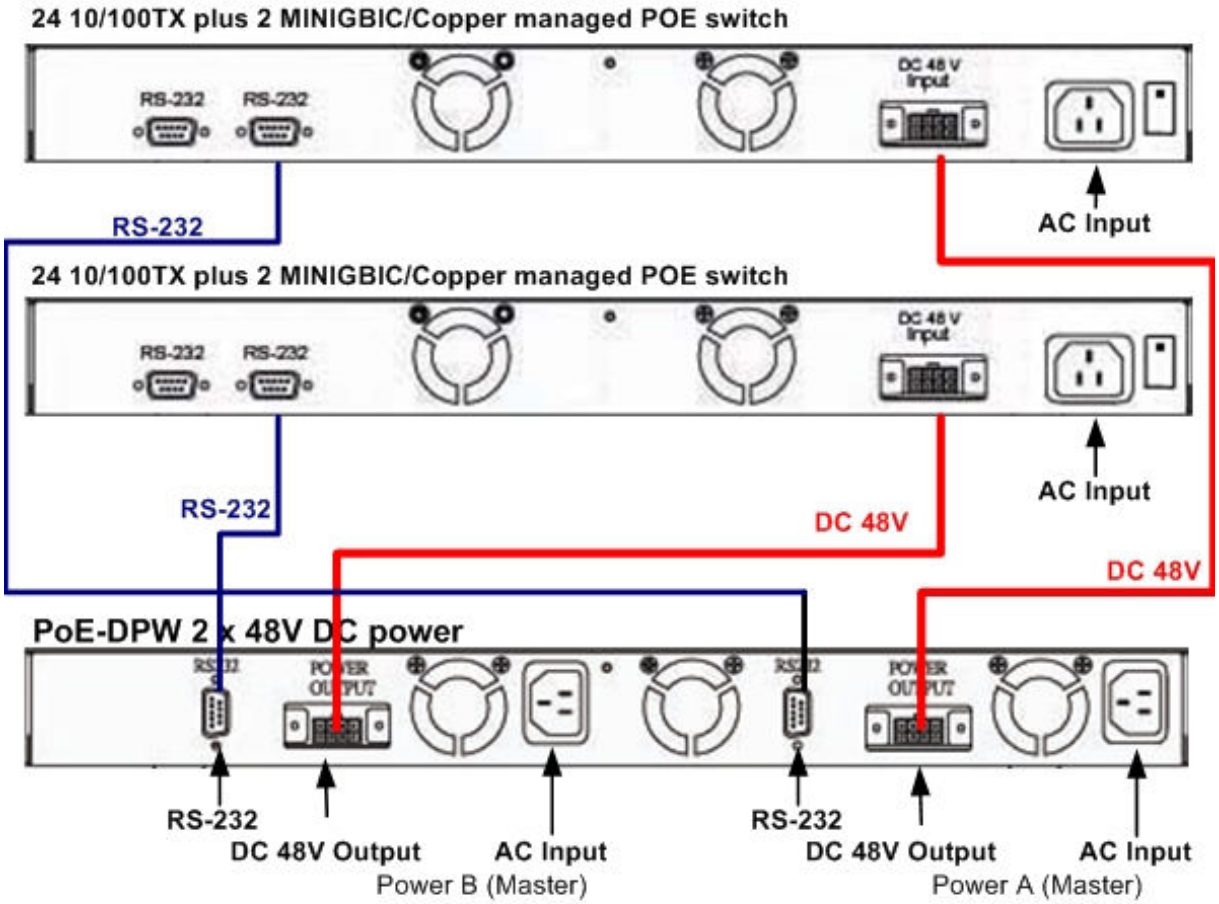

Power over Ethernet Application

## DC Power Input

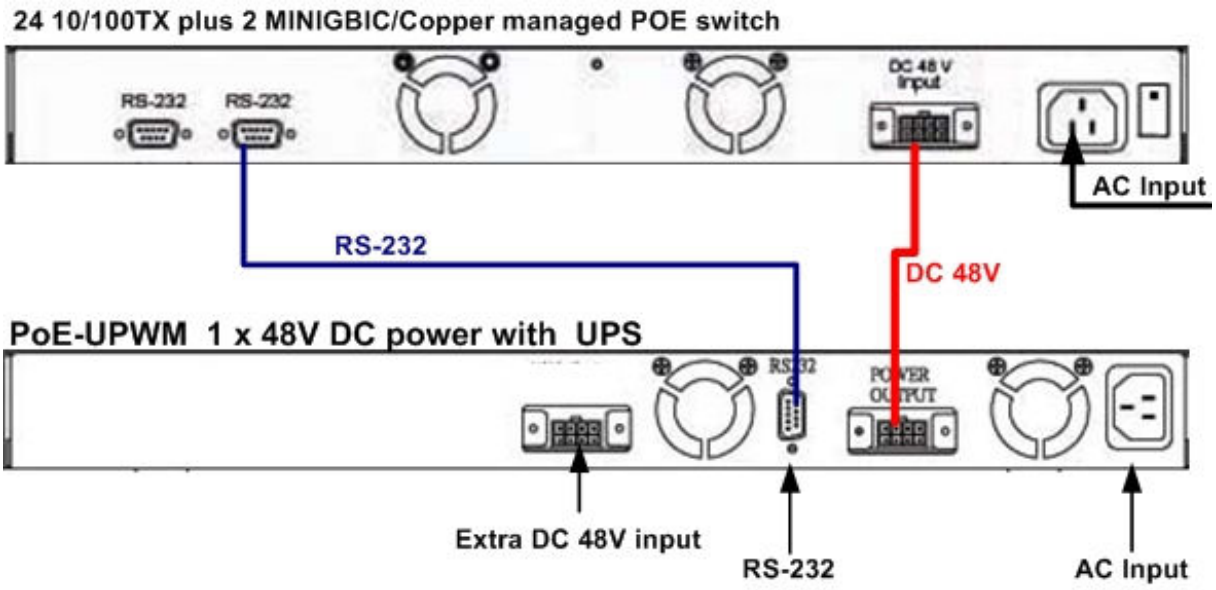
The 24 10/100TX plus 2 SFP/Copper managed POE switch provides a DC 48V power input for the extra power supply connection. The DC 48V power input can be used as a power backup when the AC power is down or no AC power provided in the network environment. The AC power and the DC 48V power can be connected at the same time, but the switch will use the DC 48V as the master power input and the AC power as the secondary or backup power input. The following figures are example of the application. In the figure, the DC 48V power input connects with the power supply device and through the RS-232 connection to manage the connected power supply device.




(PoE-SPW with one PoE-Switch application)



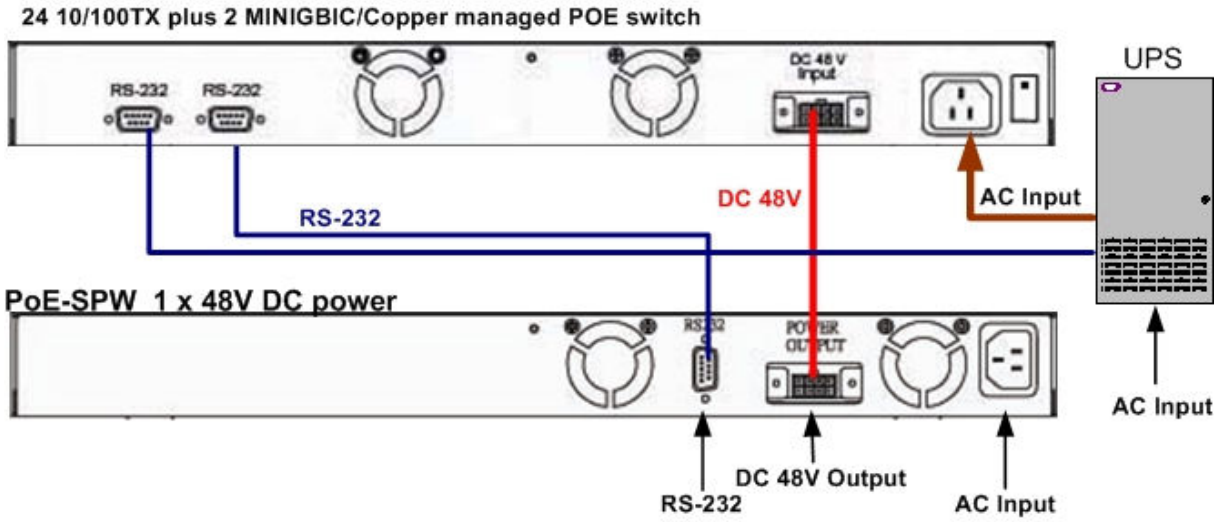

( PoE Switch with 2 DC 48 Power supply application)




(PoE-UPWM with one PoE-Switch application)

## Power Redundant

The 24 10/100TX plus one Exp. slot managed POE Switch can connect with UPS to prevent the power failure.




(PoE-SPW with one PoE-Switch and UPS application)

# Console Management

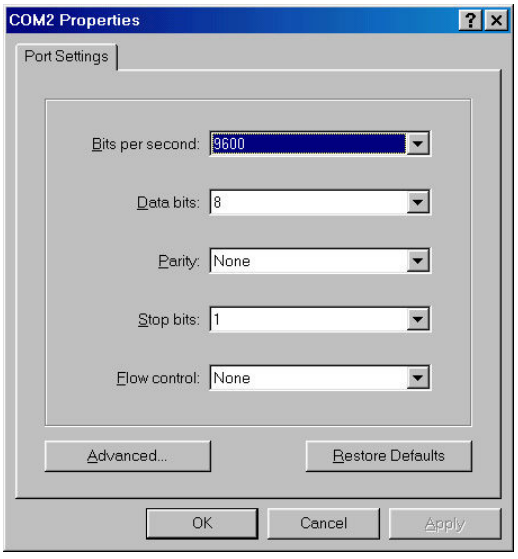
## Connecting to the Switch

The console port is a female DB-9 connector that enables a connection to a PC or terminal for monitoring and configuring the Switch. Use the supplied RS-232 cable with a male DB-9 connector to connect a terminal or PC to the Console port. The Console configuration (out of band) allows you to set switch for remote terminal as if the console terminal were directly connected to it.

## Login in the Console Interface

When the connection between Switch and PC is ready, turn on the PC and run a terminal emulation program or **Hyper Terminal** and configure its **communication parameters** to match the following default characteristics of the console port:

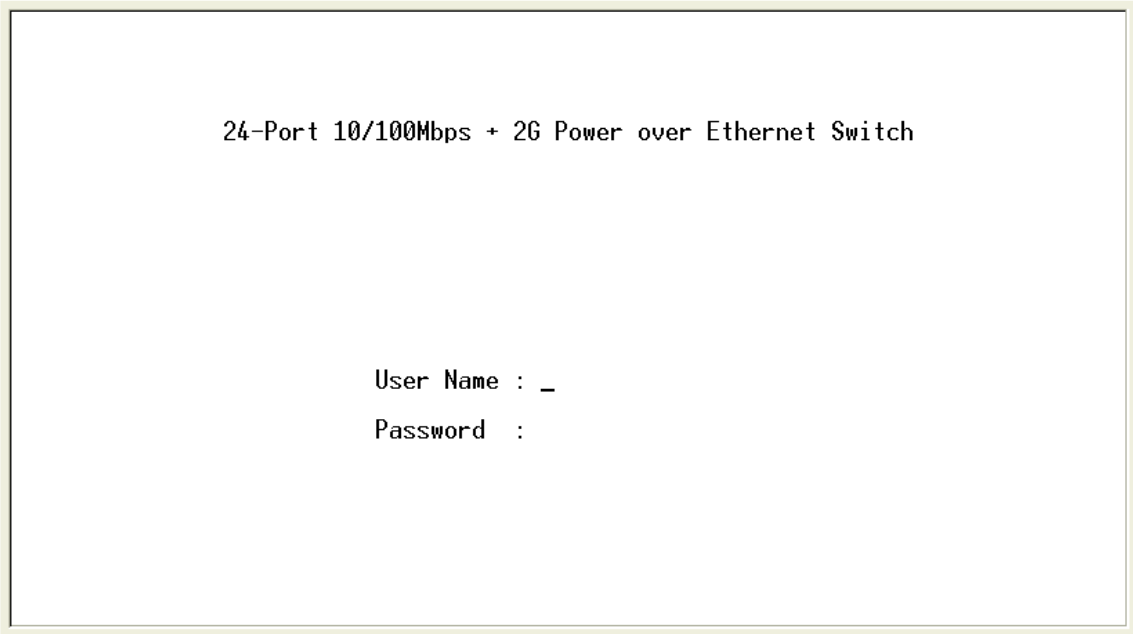
**Baud Rate: 9600 bps**
**Data Bits: 8**
**Parity: none**
**Stop Bit: 1**
**Flow control: None**




The settings of communication parameters

After finished the parameter settings, click "**OK**". When the blank screen shows up, press

**Enter** key to bring out the login prompt. Key in the "**root**"(default value) for the both User name and Password (use **Enter** key to switch), then press **Enter** key and the Main Menu of console management appears. Please see below figure for login screen.




Console login screen

## CLI Management

The system supports two types of console management – CLI command and Menu selection. After you login to the system, you will see a command prompt. To enter CLI management interface, enter "**enable**" command. The following tables list the CLI commands and description.

### Commands Level

| Modes | Access Method | Prompt | Exit Method | About This Mode |
|---|---|---|---|---|
| **User EXEC** | Begin a session with | switch> | Enter logout or quit. | The user commands available at the user |

| | | | | |
|---|---|---|---|---|
| | your switch. | | | level are a subset of those available at the privileged level.<br>Use this mode to<br>• Perform basic tests.<br>• Display system information. |
| **Privileged EXEC** | Enter the enable command while in user EXEC mode. | switch# | Enter disable to exit. | The privileged command is advance mode<br>Privileged this mode to<br>• Display advance function status<br>• Save configures |
| **Global Configuration** | Enter the configure command while in privileged EXEC mode. | switch (config)# | To exit to privileged EXEC mode, enter exit or end | Use this mode to configure parameters that apply to your switch as a whole. |
| **VLAN database** | Enter the vlan database command while in privileged EXEC mode. | switch (vlan)# | To exit to user EXEC mode, enter exit. | Use this mode to configure VLAN-specific parameters. |

| | | | | |
|---|---|---|---|---|
| **Interface configuration** | Enter the interface command (with a specific interface) while in global configuration mode | switch (config-if)# | To exit to global configuration mode, enter exit.<br>To exist to privileged EXEC mode, or end. | Use this mode to configure parameters for the switch and Ethernet ports. |
| **UPS** | Enter the **ups** command while in privileged EXEC mode. | switch(ups)# | To exit to privileged EXEC mode, enter **exit** | Use this mode to UPS parameters for the switch. |
| **POE** | Enter the **poe** command while in privileged EXEC mode. | switch(poe)# | To exit to privileged EXEC mode, enter **exit** | Use this mode to POE parameters for the switch. |

## Commands Set List

### ■ System Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **system name [word]** | Global configuration mode | Set switch system name string | | Switch (config)# ***system name*** xxx |

| | | | | |
|---|---|---|---|---|
| **system location [word]** | Global configuration mode | Set switch system location string | | Switch (config)# ***system location*** xxx |
| **system description [word]** | Global configuration mode | Set switch system description string | | Switch (config)# ***system description*** xxx |
| **system contact [word]** | Global configuration mode | Set switch system contact window string | | Switch (config)# ***system contact*** xxx |
| **ip address [IP-address] [subnet-mask ] [ gateway]** | Global configuration mode | Use the ip address interface configuration command to set an IP address for a switch. Use the no form of this command to remove an IP address or to disable IP processing. | | Switch (config)# ***ip address*** 192.168.1.1 255.255.255.0 192.168.1.254 |
| **write [memory\| terminal]** | Privileged EXEC | The “write memory” is save configuration and the “write terminal” is show all configuration. | | Switch# ***write memeory*** Update NVRAM to Flash Complete<br><br>Switch# ***write terminal*** |
| **reload** | Global configuration mode | Halt and perform a cold restart | | Switch (config)# ***reload*** |

| | | | | |
|---|---|---|---|---|
| **default** | Global configuration mode | Restore to default | | Switch (config)# ***default*** |
| **username [word]** | Global configuration mode | Changes a login username. (maximum 10 words) | | Switch (config)# ***username*** xxxxxx |
| **password [word]** | Global configuration mode | Specifies a password (maximum 10 words) | | Switch (config)# ***password*** xxxxxx |
| **show accounting** | Privileged EXEC | Show username & password | | Switch# ***show accounting*** Username: root Password: root |
| **show system-info** | User EXEC | Show system information | | Switch> ***show system-info*** Name: switch1 location: lab Description: layer2 switch Contact: somewhere Serial NO: 1.00 |

| | | | | |
|---|---|---|---|---|
| **show ip** | Privileged EXEC | Show IP information | | Switch# ***show ip address***<br>ip: 192.168.1.1<br>Address subnet: 255.255.255.0<br>Address gateway: 192.168.1.254 |
| **show version** | User EXEC | Use the show version user EXEC command to display version information for the hardware and firmware. | | Switch> ***show version***<br>Firmware version: 1.0<br>Hardware version: 3.0<br>Kernel version: 1.10 |

## ■ Port Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **interface [FastEthernet /module Ethernet] [slot id] [id]** | Interface configuration mode | Use the fast Ethernet interface configuration command | | Switch (config)# ***interface fastEthernet 0/1*** |
| | | Use the module Ethernet interface configuration command | | Switch (config)# ***interface moduleEthernet 1/1*** |

| | | | | |
|---|---|---|---|---|
| **duplex [full** \| **half**\| **auto]** | Interface configuration mode | Use the duplex configuration command to specify the duplex mode of operation for Fast Ethernet. | Auto | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***duplex full*** |
| | | Use the duplex configuration command to specify the duplex mode of operation for module Ethernet. | Auto | Switch (config)# ***interface moduleEthernet 1/1*** Switch (config-if)# ***duplex full*** |
| **speed [10** \| **100** \| **auto]** | Interface configuration mode | Use the speed configuration command to specify the speed mode of operation for Fast Ethernet. | Auto | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***speed 10*** |
| **speed [10**\| **100** \| **1000** \| **auto]** | Interface configuration mode | Use the speed configuration command to specify the speed mode of operation for module Ethernet.<br>■ The 100Base-FX module only supported for speed 100 | | Switch (config)# ***interface fastEthernet 1/2*** Switch (config-if)# ***speed 1000*** |

| | | | | |
|---|---|---|---|---|
| | | ■ The 1000Base-FX module only supported for speed 1000 & auto | | |
| **flowcontrol on or no flowcontrol** | Interface configuration mode | Use the flow control configuration command on Ethernet ports to control traffic rates during congestion.<br>Use the no form of this command to disable security on the port. | On | Switch (config)# ***interface fastEthernet 0/1***<br>Switch (config-if)# ***flowcontrol on*** |
| **security on or no security** | Interface configuration mode | Use the security configuration command on Ethernet ports.<br>Use the no form of this command to disable security on the port. | Disable | Switch (config)# ***interface fastEthernet 0/1***<br>Switch (config-if)# ***security on*** |
| **priority on [high \| low] or no priority** | Interface configuration mode | Use the priority configuration command on Ethernet ports.<br>Use the no form of this command to disable security on the port. | Disable | Switch (config)# ***interface fastEthernet 0/1***<br>Switch (config-if)# ***priority on high*** |

| | | | | |
|---|---|---|---|---|
| **Bandwidth [in \| out] [value]** | Interface configuration mode | Set bandwidth in or out rate. The value rage is (0~999), and zero of the value is disable (The module can't be setting) | Disable | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***bandwidth in 50*** |
| **State [Enable \| Disable]** | Interface configuration mode | Use the state interface configuration command to specify the state mode of operation for Ethernet ports. Use the disable form of this command to disable the port. | Enable | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***state disable*** |
| **show interface configuration** | Interface configuration mode | show interface configuration status | | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***show interface configuration*** |

| | | | | |
|---|---|---|---|---|
| **show interface status** | Interface configuration mode | show interface actual status | | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***show interface status*** |
| **show interface accounting** | Interface configuration mode | show interface statistic counter | | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***show interface accounting*** |
| **show bandwidth** | Interface configuration mode | Display the bandwidth of the values | | Switch (config)# ***interface fastEthernet 0/1*** Switch (config-if)# ***show bandwidth*** |
| **interface [FastEthernet /module Ethernet] [slot id] [id]** | Interface configuration mode | Use the fast Ethernet interface configuration command | | Switch (config)# ***interface fastEthernet 0/1*** |

## ■ Trunk Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **show group [group-ID]** | Privileged EXEC mode | Display trunk group information. If there is no group-number in put, display all trunk groups. | | Switch # ***show group 1***<br>Group Trunk.1:<br>Ports: 02 03 04<br>Priority: 0001<br>Lacp: Enable<br>Work ports: 0 |
| **port group [group-ID] [port-list] lacp [on \| off] workp [work ports]**<br><br>**no port group [group-ID] lacp [on \| off] workp [work ports]** | Global configuration mode | Add trunking group.<br>Use the no form of this command to delete trunking group. | Disable | LACP:<br>Switch (config)#<br>***port group 1 1-4 lacp on workp 2***<br><br>Trunk without LACP:<br>Switch (config)#<br>***port group 1 1-4 lacp off workp 4*** |
| **port group [group-ID] activityport [port ID]** | Global configuration mode | Set trunking group port active | | Switch (config)#<br>***port group 3 activityport 2-4***<br><br>Trunk.1 Lacp:<br>Enable<br>Check OK!<br>NEW: 2 4<br>Update finished!! |

## ■ VLAN Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **Vlan datatbase** | Privileged EXEC mode | To enter the VLAN configuration interface | | Switch# ***vlan database*** Switch(vlan)# |
| **vlanmode [disable\| portbase\| 802.1q \| gvrp]** | VLAN database mode | To set switch VLAN mode .Use the no form of this command to restore to default. | Disable | Switch (vlan)# ***vlanmode 802.1q*** |
| **Port Base VLAN** | | | | |
| **vlan [Group Name] grpid [Group ID] port [Port ID]** | VLAN database mode | Add new Port Base VLAN | | Switch (vlan)# ***vlan v2 grpid 2 port 1-4*** |
| **no vlan [Group Name] [Group ID]** | VLAN database mode | Delete port base VLAN group | | Switch (vlan)# ***no vlan v2 2*** |
| **show vlan [Group Name] [Group ID] or show vlan** | VLAN database mode | Show VLAN of Group Name or Group ID information | | Switch (vlan)# ***Show vlan v2 2*** |
| **vlan [Group name] add [port ID]** | VLAN database mode | Set the port of some port group | | Switch (vlan)# ***vlan v2 add 5*** |

| | | | | |
|---|---|---|---|---|
| **vlan [Group name] delete [port ID]** | VLAN database mode | Remove the port from it's port group. | | Switch (vlan)# ***vlan v2 delete 5*** |
| **802.1Q \| 802.1Q with GVRP VLAN mode** | | | | |
| **vlan [Group name] vlanid [group ID] port [port ID] tag [port ID]** | VLAN database mode | Add new 802.1Q VLAN<br>[group name]: VLAN name<br>[group ID]: 2 ~ 4094<br>[port ID]:<br>port members 1~9 | | Switch(vlan)# ***vlan v2 vlanid 2 port 1-4 tag 2-4*** |
| **vlan [group name] add [port ID] [tagged \| untagged]** | VLAN database mode | Set the port of some port group tagged or untagged | | Switch(vlan)# ***vlan v2 add 5-8 tagged***<br>or<br>***vlan v2 add 5-8 untagged*** |
| **vlan [group name] delete [port ID]** | VLAN database mode | Remove the port from its port group. | | Switch(vlan)# ***vlan v2 delete 5*** |
| **no vlan [Group name] or [group ID]** | VLAN database mode | Delete 802.1Q VLAN group | | Switch (vlan)# ***no vlan v2***<br>Switch (vlan)# ***no vlan v2 2*** |
| **vlan protocol [group name] [protocol value]** | VLAN database mode | Add protocol vlan [group name]: vlan group name | | Switch(vlan)# ***vlan protocol v3 ip vlanid 2 port 5-8 tag 6,8*** |

| | | | | |
|---|---|---|---|---|
| **vlanid [group ID] port [port ID] tag [port ID]** | | IP-ip<br>ARP-arp<br>Appletalk-app<br>Appletalk_AARP-app_arp<br>Novell_IPX-ipx<br>Banyan_vines-banyan_c4<br>Banyan_vines-banyan_c5<br>Banyan_vines-banyan_ad<br>Decent_mop_01-decent_01<br>Decent_mop_02-decent_02<br>Decent_dpr-decent_dpr<br>Decent_LAT-decent_lat<br>Decent_LAVC-decent_lavc<br>IBM SNA-ibm<br>X.75 internet-x75<br>X.25 Layer3-x25<br><br>[VLAN ID]: 2 ~ 4094<br>[port ID]:<br>port ID 1~10 | | Switch(vlan)# ***vlan protocol v3 arp vlanid 2 port 5-8 tag 6,8***<br><br>Switch(vlan)# ***vlan protocol v3 banyan vlanid 2 port 5-8 tag 6,8*** |
| **vlanidrange [VLAN ID** | VLAN database | Set VLAN ID range [1~255] range 0 | | Switch (vlan)# ***vlanidrange 2*** |

| | | | | |
|---|---|---|---|---|
| **range]** | mode | [256~511] range 1<br>[512~767] range 2<br>[768~1023] range 3<br>[1024~1279] range 4<br>[1280~1535] range 5<br>[1536~1791] range 6<br>[1792~2047] range 7<br>[2048~2303] range 8<br>[2304~2559] range 9<br>[2560~2815] range 10<br>[2816~3071] range 11<br>[3072~3327] range 12<br>[3328~3583] range 13<br>[3584~3839] range 14<br>[3840~4094] range 15 | | OLD: 0<br>NEW: 2 |
| **VLAN protocol [Group name] add [port ID] [tagged \|** | VLAN database mode | Set the port of some port group tagged or untagged | | Switch (vlan)# ***vlan protocol v2 add 5 tagged*** |

| | | | | |
|---|---|---|---|---|
| **untagged]** | | | | |
| **VLAN protocol [Group name] delete [port ID]** | VLAN database mode | Remove the port from its port group. | | Switch (vlan)# ***vlan protocol v2 delete 5*** |
| **show vlan [Group name] [Group ID] or show vlan** | VLAN database mode | Show VLAN of Group Name or VLAN ID information<br>vlanid: 1 ~ 4094 | | Switch (vlan)# ***show vlan v2 2*** |
| **show vlan protocol** | VLAN database mode | show protocol vlan<br>Protocol<br>ip<br>ipx<br>netbios | | Switch (vlan)# ***show vlan protocol*** |
| **port [port ID] pvid [port VID] ingressfilter1 [on \| off] ingressfilter2 [on \| off]** | VLAN database mode | Set Port PVID and Ingress Filter Rules1 & Ingress Filter Rules2 | | Switch (vlan)# ***port 2 pvid 2 ingressfilter1 off ingressfilter2 on*** |

| | | | | |
|---|---|---|---|---|
| **show port [port ID]** | VLAN database mode | show Port PVID and Ingress Filter Rules1 & Ingress Filter Rules2 | | Switch (vlan)# s***how port 2***<br>Port ID: 2<br>Port Vid: 2<br>Ingress 1 Filter: Disable<br>Ingress 2 Filter: Enable |

## ■ Spanning Tree Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **show spanning-tree** | User EXEC mode | Display a summary of the spanning-tree states. | | Switch> ***show spanning-tree***<br>System:<br>Priority: 32768<br>Max Age: 20<br>Hello Time: 2<br>Forward Delay: 15<br>Priority: 32768<br>Mac Address: 004063800030<br>Root_Path_Cost: 0<br>Root Port: we are root<br>Max Age: 20<br>Hello Time: 2<br>Forward Delay: 15 |

| | | | | |
|---|---|---|---|---|
| **spanning-tree [on / off]**<br><br>or<br>**no spanning-tree** | Global configuration mode | Use the spanning-tree global configuration command to enable Spanning Tree Protocol (STP). Use the no form of the command to restore to default | Disable | Switch (config)# ***spanning-tree on***<br><br>or<br>Switch (config)# ***no spanning-tree*** |
| **spanning-tree priority [number]** | Global configuration mode | Use the spanning-tree max-age global configuration command to change the priority.<br><br>Use the no form of this command to return to the default interval. | 32768 | Switch (config)# ***spanning-tree priority 32767*** |
| **spanning-tree max-age [seconds]** | Global configuration mode | Use the spanning-tree max-age global configuration command to change the interval between messages the spanning tree receives from the root switch. If a | 20 sec | Switch (config)# ***spanning-tree max-age 15*** |

| | | | | |
|---|---|---|---|---|
| | | switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, it recomputes the Spanning Tree Protocol (STP) topology. Use the no form of this command to return to the default interval. | | |
| **spanning-tree hello-time [seconds]** | Global configuration mode | Use the spanning-tree hello-time global configuration command to specify the interval between hello bridge protocol data units (BPDUs). Use the no form of this command to return to the default interval. | 2 sec. | Switch (config)# ***spanning-tree hello-time 3*** |

| | | | | |
|---|---|---|---|---|
| **stp-path-cost [number]** | Interface configuration mode | Use the spanning-tree cost interface configuration command to set the path cost for Spanning Tree Protocol (STP) calculations. In the event of a loop, spanning tree considers the path cost when selecting an interface to place into the forwarding state. Use the no form of this command to return to the default value. | 10 Mbps – 100<br><br>100 Mbps – 10 | Switch (config)# ***interface fastEthernet 0/2***<br>Switch (config-if)# ***stp-path-cost 20*** |
| **spanning-tree forward-time [seconds]** | Global configuration mode | Use the spanning-tree forward-time global configuration command to set the forwarding-time for the specified spanning-tree instances. The forwarding time determines how | 15 sec. | Switch (config)# ***spanning-tree forward-time 20*** |

| | | | | |
|---|---|---|---|---|
| | | long each of the listening and learning states last before the port begins forwarding. Use the no form of this command to return to the default value. | | |
| **stp-path-priority [number]** | Interface configuration mode | Use the spanning-tree port-priority interface configuration command to configure a port priority that is used when two switches tie for position as the root switch. Use the no form of this command to return to the default value. | 128 | Switch (config)# ***interface fastEthernet 0/2*** Switch (config-if)# ***stp-path-priority 127*** |

## ■ QOS Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **qos storm-control [5\|10\|15\|20\|25\| off (%)] or no storm-control** | Global configuration mode | Enable/Disable broadcast storm control. Use the no form of this command to restore to default. | OFF | Switch (config)# ***qos storm-control 5*** |
| **qos low-priority-delay-bound [on\|off] [sec.] or no qos low-priority-delay-bound** | Global configuration mode | Enable/Disable low priority delay board. Use the no form of this command to restore to default. | OFF | Switch (config)# ***qos low-priority-delay-bound on 1*** |
| **qos level [priority]** | Global configuration mode | [Priority] 0~7 | 0~3 LOW 4~7 HI | Switch (config)# ***qos level 2,3*** |
| **no qos level [priority]** | Global configuration mode | [Priority] 0~7 | 0~3 LOW 4~7 HI | Switch (config)# ***no qos level 0-7*** |

| | | | | |
|---|---|---|---|---|
| **qos queuepolicy [Policy] hi [number] low [number]** | Global configuration mode | [Policy]:fcfs: first in and first out<br>wrr: weight round robin<br>ahbl: all high before low.<br>[Priority] Hi:1~7<br>Low:1 | WRR<br>Hi 2<br>Low 1 | WRR:<br>Switch (config)# ***qos queuepolicy wrr hi 7 low 1***<br><br>First Come First Served:<br>Switch (config)# ***qos queuepolicy fcfs***<br><br>All High before Low:<br>Switch (config)# ***qos queuepolicy ahbl*** |
| **qos bridge-delay-bound [sec.]**<br>**no qos bridge-delay-bound** | Global configuration mode | Set qos bridge delay bound<br>Use the no form of this command to restore to default. | OFF | Switch (config)# ***qos bridge-delay-bound 1*** |
| **show qos storm-control** | Global configuration mode | Show broadcast storm control. | | Switch (config)# ***show qos storm-control***<br>QOS storm control mode: ENABLE |

| | | | | |
|---|---|---|---|---|
| **show qos policy** | Global configuration mode | Show qos policy | | Switch (config)# ***show qos policy*** Qos Mode: WRR |
| **show qos low-priority-delay-bound** | Global configuration mode | Show low priority delay board. | | Switch (config)# ***show qos low-priority-delay-bound*** Qos low priority delay bound: 1 |
| **show qos bridge-delay-bound** | Global configuration mode | Show bridge delay bound | | Switch (config)# ***show qos bridge-delay-bound*** bridge-delay-bound 5 |

## ■ IGMP Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **igmp [on \| off]** | Global configuration mode | Enable /Disable IGMP snooping function | Off | Switch (config)# ***igmp on*** |
| **igmp-query [auto \|enable \| disable]** | Global configuration mode | Modify IGMP query mode | Disable | Switch (config)# ***igmp-query enable*** |
| **show ip igmp profile** | Privileged EXEC mode | Displays the details of an IGMP profile entry. | | Switch# show ip ***igmp profile*** |

| | | | | |
|---|---|---|---|---|
| | | | | ***IP***<br>VID Port 224.1.1.1<br>10 1,2,6 |

## ■ Mac / Filter Table Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **mac-address-table aging-time [on \| off]**<br><br>**mac-address-table aging-time [sec.]**<br>or **no mac-address-table aging-time** | Global configuration mode | Use the mac-address-table aging-time global configuration command to set the length of time that a dynamic entry remains in the MAC address table after the entry is used or updated.<br>Use the no form of this command to use the default aging-time interval.<br>The aging time applies to all VLANs. | 300 secs | Switch (config)# ***mac-address-table aging-time on***<br><br>Switch (config)# ***mac-address-table aging-time 333***<br><br>(Disable)<br>Switch (config)# ***mac-address-table aging-time off***<br>Or<br>Switch(config)# ***no mac-address-table aging-time*** |

| | | | | |
|---|---|---|---|---|
| **mac-address-table table [static \| filter] hwaddr [MAC address] vlanid [VLAN-ID]** | Interface configuration mode | Use the mac-address-table static to add static \| filter addresses to the MAC address table. Use the no form of this command to remove static entries from the MAC address table. | N/A | Switch (config)# ***interface fastEthernet 0/2*** Switch (config-if)# ***mac-address-table static hwaddr 004063112233 vlanid 10*** |
| **no mac-address-table [static \| filter] hwaddr [MAC address] vlanid [VLAN-ID]** | Interface configuration mode | Use the no mac-address-table privileged EXEC command to delete entries from the MAC address table. | | Switch (config)# ***interface fastEthernet 0/2*** Switch (config-if)# no ***mac-address-table static hwaddr 004063112233 vlanid 10*** |
| **show mac-address-table [static \| filter]** | Privileged EXEC mode | Use the show mac-address-table user EXEC command to display the MAC address table. | | Switch # ***show mac-address-table static*** |
| **show mac-address-table aging-time** | Privileged EXEC mode | Use the show mac-address-table user EXEC command to display | | Switch# ***show mac-address-table aging-time*** MAC Address |

| | | | | |
|---|---|---|---|---|
| | | the MAC address table. | | aging-time: 300 |

## ■ SNMP Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **snmp system-name [word]** | Global configuration mode | Set SNMP agent system name | N/A | Switch (config)# ***snmp system-name*** l2switch |
| **snmp system-location [word]** | Global configuration mode | Set SNMP agent system location | N/A | Switch (config)# ***snmp system-location lab*** |
| **snmp system-contact [word]** | Global configuration mode | Set SNMP agent system contact | N/A | Switch (config)# ***snmp system-contact*** where |
| **snmp community-strings [word] right [RO \| RW]**<br>Or<br>**no snmp community-strings [word]** | Global configuration mode | Add SNMP community string. Use the no form of this command to remove the specified community. | PUBLIC RO | Switch (config)# ***snmp community-strings public right RW***<br><br>Switch(config)# ***no snmp community-strings public right rw*** |
| **snmp-server host [IP-address] community [word]** | Global configuration mode | Configure SNMP server host information and community string | N/A | Switch(config)# ***snmp-server host 192.168.1.50 community public*** |

| | | | | |
|---|---|---|---|---|
| **No snmp-server host [IP address] community [word]** | | | | Switch(config)# ***no snmp-server host 192.168.1.50 community public*** |
| **snmp system-name [word]** | Global configuration mode | Set SNMP agent system name | N/A | Switch (config)# ***snmp system-name l2switch*** |

## ■ Port Mirroring Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **port monitor [RX\|TX\|both] [port ID]**<br>Or<br>**no port monitor** | Interface configuration mode | Use the port monitor interface configuration command to enable Switch Port Analyzer (SPAN) port monitoring on a port. Use the no form of this command to return the port to its default value. | N/A | Switch (config)# ***Interface fastEthernet 0/8***<br>Switch (config-if)# ***port monitor both 3*** |

| | | | | |
|---|---|---|---|---|
| **show port monitor** | Privileged EXEC mode | Use the show port monitor privileged EXEC command to display the ports for which Switched Port Analyzer (SPAN) port monitoring is enabled. | | Switch # ***show port monitor***<br>State: Enable<br>AnalysisPortId: 8<br>Port 01 TxRx: Monitor<br>Port 02 TxRx:<br>Port 03 TxRx:<br>Port 04 TxRx:<br>Port 05 TxRx:<br>Port 06 TxRx:<br>Port 07 TxRx:<br>Port 08 TxRx: Analysis<br>Port 09 TxRx:<br>Port 10 TxRx:<br>OK. |

## ■ 802.1x Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **show 8021x** | User EXEC mode | Display a summary of the 802.1x properties and also the port sates. | N/A | Switch> ***show 8021x*** |
| **8021x [on \| off]**<br>or<br>**No 8021x** | Global configuration mode | Use the 802.1x global configuration command to enable 802.1x protocols. Use the no form of the command to restore to default | Disable | Switch (config)# ***8021x on*** |

| | | | | |
|---|---|---|---|---|
| **8021x system radiusip [IP address]**<br>Or<br>**no 8021x system radiusip** | Global configuration mode | Use the 802.1x system radius IP global configuration command to change the radius server IP.<br><br>Use the no form of this command to return to the default interval. | 192.168.16.3 | Switch (config)# ***8021x system radiusip*** 192.168.1.1<br><br>(Default) Switch(config)# ***no 8021x system radiousip*** |
| **8021x system sharekey [number]**<br>Or<br>**no 8021x system sharekey** | Global configuration mode | Use the 802.1x system sharekey global configuration command to change the shared key value.<br><br>Use the no form of this command to return to the default interval. | 12345678 | Switch (config)# ***8021x system sharekey*** 123456<br><br>(Default) Switch (config)# ***no 8021x system sharekey*** |
| **8021x system serverport [Port Number]** | Global configuration mode | set radius server port | 1812 | Switch (config)# ***8021x system serverport*** 1815 |
| **8021x system accountport [Port Number]** | Global configuration mode | set accounting port | 1813 | Switch (config)# ***8021x system accountport*** 1816 |
| **8021x system nasid [word]** | Global configuration mode | set NAS ID | NAS_L2_SWITCH | Switch (config)# ***8021x system nasid*** test1 |

| | | | | |
|---|---|---|---|---|
| **8021x misc quietperiod [sec.]**<br>Or<br>**no 8021x misc quietperiod** | Global configuration mode | Use the 802.1x misc quiet period global configuration command to specify the quiet period value of the switch.<br><br>Use the no form of this command to return to the default interval. | 60 sec. | Switch (config)# ***8021x misc quietperiod*** 10<br><br>(Default)<br>Switch(config)# ***no 8021x misc quietperiod*** |
| **8021x misc txperiod [sec.]**<br>Or<br>**no 8021x txperiod** | Global configuration mode | Use the 802.1x misc TX period global configuration command to set the TX period.<br><br>Use the no form of this command to return to the default value. | 30 sec. | Switch (config)# ***8021x misc txperiod*** 5<br><br>(Default)<br>Switch(config)# ***no 8021x misc txperiod*** |
| **8021x misc supptimeout [sec.]** | Global configuration mode | Set the period of time the switch wait for a supplicant response to an EAP request. | 30 sec. | Switch (config)# ***8021x misc supptimeout*** 30 |
| **8021x misc servertimeout [sec.]** | Global configuration mode | Set the period of time the switch wait for a server response to an authentication request. | 30 sec. | Switch (config)# ***8021x misc servertimeout*** 50 |
| **8021x misc maxrequest [Number]** | Global configuration mode | Set the number of authentication that must time-out before | 2 | Switch (config)# ***8021x misc maxrequest*** 2 |

| | | | | |
|---|---|---|---|---|
| | | authentication fails and the authentication session ends. | | |
| **8021x misc reauthperiod [sec.]** | Global configuration mode | Set the period of time after which clients connected must be re-authenticated. | 3600 | Switch(config)# ***8021x misc reauthperiod*** 20 |
| **8021x prostate [reject \| accept \| authorize \| disable]** | Interface configuration mode | Use the 802.1x port state interface configuration command to set the state of the selected port.<br>■ **Reject:** the specified port is required to be held in the unauthorized state.<br>■ **Accept:** the specified port is required to be held in the Authorized state.<br>■ **Authorized:** the specified port is set to the Authorized or Unauthorized state in accordance with the outcome of an authentication exchange between the Supplicant and the | N/A | Switch (config)# ***interface fastethernet*** **0/3**<br>Switch (config-if)# ***8021x portstate accept*** |

| | | | | |
|---|---|---|---|---|
| | | authentication server.<br>■ **Disable:** The specified port is required to be held in the Authorized state. | | |

■ **TFTP Commands Set**

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **copy flash:config.text tftp [TFTP IP address] [file name]** | Global configuration mode | Backup configure file command | | Switch (config)# ***copy flash:config.***text tftp<br>Server IP:192.168.1.1<br>Image Filename:backup.dat |
| **tftp:config.text flash [TFTP IP address] [file name]** | Global configuration mode | Restore configure file command | | Switch(config)# ***Tftp:config.text flash***<br>Server IP:192.168.1.1<br>Image Filename:restore.dat |
| **tftp:firmware flash [TFTP IP** | Global configuration mode | Update firmware command | | Switch (config)# ***Tftp:firmware flash*** |

| | | | | |
|---|---|---|---|---|
| **address]**<br>**[file name]** | | | | Server IP:192.168.1.1<br>Image Filename:image.bin |

## ■ UPS Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **status** | UPS mode | Display a summary of the UPS status. | | Switch (ups)#***status***<br>Input Output Voltage……. |
| **Info** | UPS mode | Show UPS information | | Switch (ups)#***info***<br>Company Name :xxx<br>Model :xxx<br>Version :xxx |
| **Test 10** | UPS mode | UPS will perform the self-test for 10 seconds. | | Switch (ups)#***test10***<br>test OK |

## ■ POE Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **status** | POE mode | Show POE information | | Switch(poe)# ***status*** |
| **setpm [on \| off]** | POE mode | Enabling or disabling the power management. | | Switch(poe)# ***setpm on*** Set Power Management Enable |
| **setlimit [value]** | POE mode | Enabling or disabling total power output limit. When is enabling, the total power output limit will follow the value that set in power limit max. | | Switch(poe)# ***setlimit 100*** |
| **portebl [enable \| disable] [ports]** | POE mode | Enabling or disabling the port POE injected function. | | Switch(poe)# ***portebl disable 1-3*** |
| **portcls [enable \| disable] [ports]** | POE mode | Enabling or disabling per port power limit by classification. | | Switch(poe)# ***portcls enable 1-3*** |
| **portmng [enable \| disable] [ports]** | POE mode | Enabling or disabling per port power limit by management. | | Switch(poe)# ***portmng enable 2-5*** |

| | | | | |
|---|---|---|---|---|
| **portleg [enable \| disable] [ports]** | POE mode | Enabling or disabling per port legacy detection. | | Switch(poe)# ***portleg enable 3-6*** |
| **portpri [critical \| high \| low] [ports]** | POE mode | Set port priority for the power supply management. | | Switch(poe)# ***portpri critical 2*** |
| **portplm [value] [ports]** | POE mode | Set per port power limit Max. | | Switch(poe)# ***portplm 12200 5-7*** |

## ■ System log Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **show systemlog** | User EXEC | Display system log. | | Switch> ***show systemlog*** |
| **show systemlog** | Privileged EXEC | Show system log client & server information | | switch# ***show systemlog*** Syslog Client: Enable Syslog Server Ip: 192.168.16.2 |
| **systemlog ip [IP address]** | Global configuration mode | Set System log server IP address. | | Switch(config)# ***systemlog ip 192.168.1.100*** |
| **systemlog [enable \| disable]** | Global configuration mode | Enable or disable system log mode | | Switch(config)# ***systemlog enable*** |

## ■ SNTP Commands Set

| Commands | Command Level | Description | Defaults | Example |
|---|---|---|---|---|
| **sntp [enable \| disable]** | Global configuration mode | Enable/Disable SNTP. | Disable | Switch(config)# ***sntp enable***<br><br>Switch(config)# ***sntp disable*** |
| **sntp ip [IP address]** | Global configuration mode | Set SNTP server IP address. | | switch#***sntp ip 192.168.16.123*** |
| **sntp timezone [value]** | Global configuration mode | Set time zone. | | Switch(config)# ***sntp timezone 8*** |

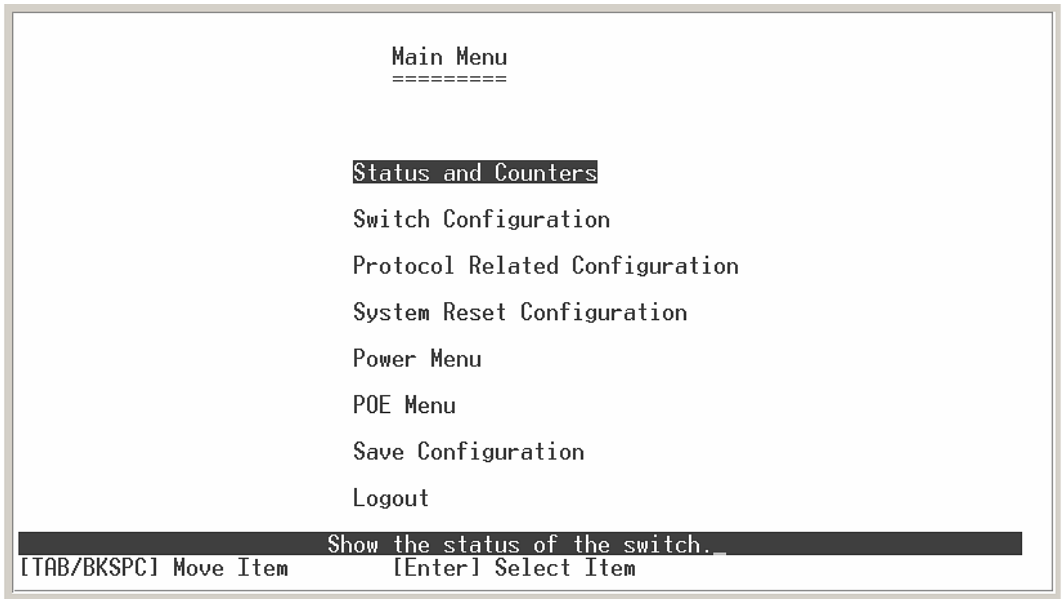
# Menu Management

After you login to the system, you will see a command prompt. To enter Menu management interface, enter "**menu**" command. You will see the main menu interface. The following configure steps are based on the software kernel version v1.01.

1. Provide a menu line interface to manage and monitor the switch. User can use windows Hyper Terminal program through the console port to connect the switch for configuration.
2. The default user name and password is "**root**".

There are 8 selections as follow.

- **Status and Counters:** Show the status of the switch.
- **Switch Configuration:** Configure the switch.
- **Protocol Related Configuration:** Configure the protocol function.
- **System Reset Configuration:** Restart the system or reset switch to default configuration.
- **Power menu:** configure the UPS function.
- **POE menu:** configure the POE function.
- **Save Configuration:** save the current configuration into the system memory.
- **Logout:** Exit the menu line program.




Main menu line interface

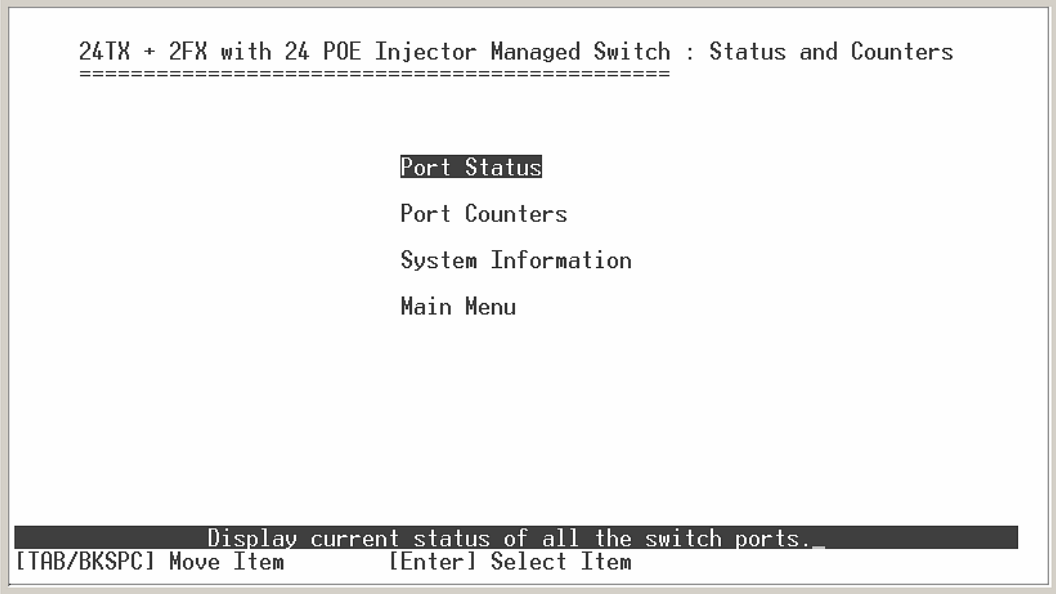
- **Control Key description:**

The control keys provided in all menus:

- **Tab/Backspace:** Move the vernier to configure item.
- **Enter:** Select item.
- **Space:** Toggle selected item to next configure or change the value.
- **Esc:** to exit the current action mode.

## Status and Counters

In Status and Counters, you can view Port status, counters, and configure system parameter.


24TX + 2FX with 24 POE Injector Managed Switch : Status and Counters
Port Status
Port Counters
System Information
Main Menu
Display current status of all the switch ports.
[TAB/BKSPC] Move Item
[Enter] Select Item

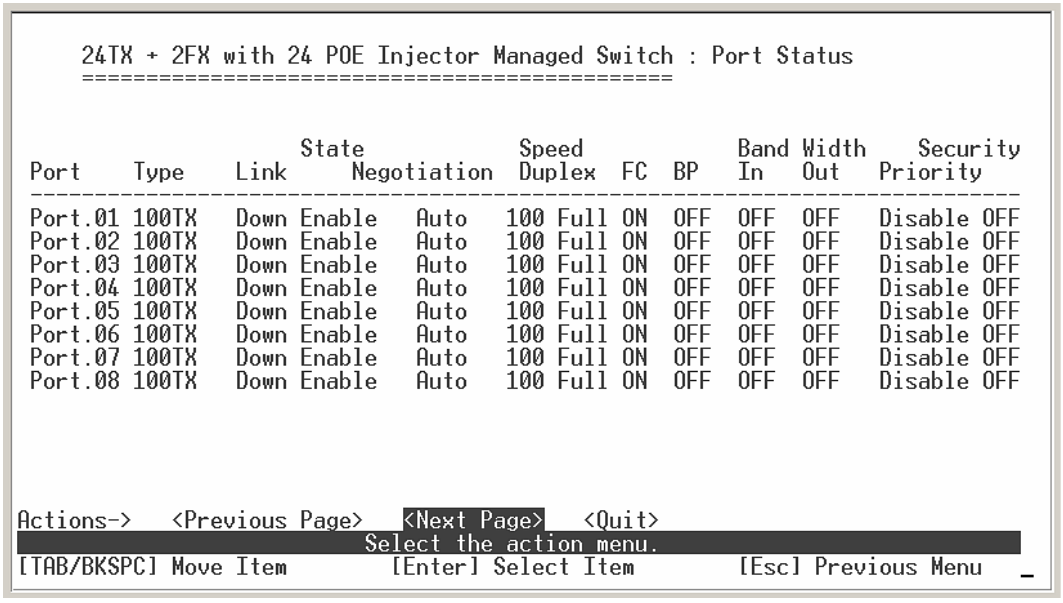
Status and Counters main configuration interface

### Port Status

It displays status of each port. Select the **<Previous Page>** action to display previous page. And, select the **<Next page>** action to display next page.

- **Type:** display port connection speed.
- **Link:** display port statuses link status. When the port is connecting with the device and work normally, the link status is "**UP**". Opposite is "**Down**".
- **State:** The port current status.
- **Negotiation:** display the auto negotiation status.
- **Speed Duplex:** display port duplex mode.
- **FC:** display the flow control status is "enable" or "disable".

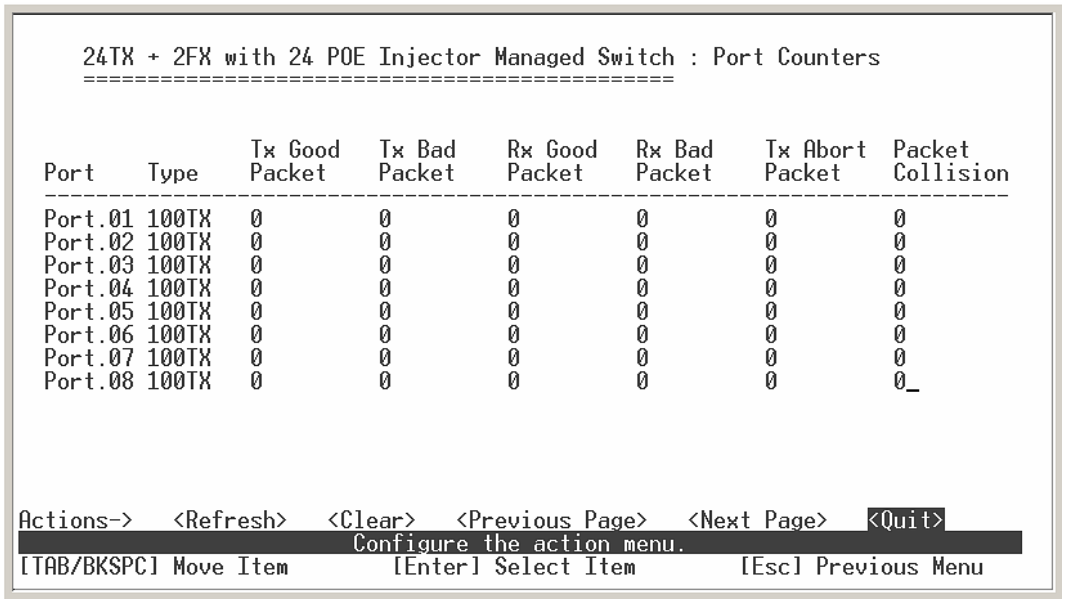
- **BP:** display backpressure status.
- **Bandwidth In/Out:** display bandwidth In/out control status.
- **Priority:** display the port priority status.
- **Security:** display the port security status.


24TX + 2FX with 24 POE Injector Managed Switch : Port Status
Port Type Link State Negotiation Speed Duplex FC BP Band Width In Out Security Priority
Port.01 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.02 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.03 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.04 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.05 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.06 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.07 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Port.08 100TX Down Enable Auto 100 Full ON OFF OFF OFF Disable OFF
Actions-> <Previous Page> <Next Page> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Port status interface

## Port Counters

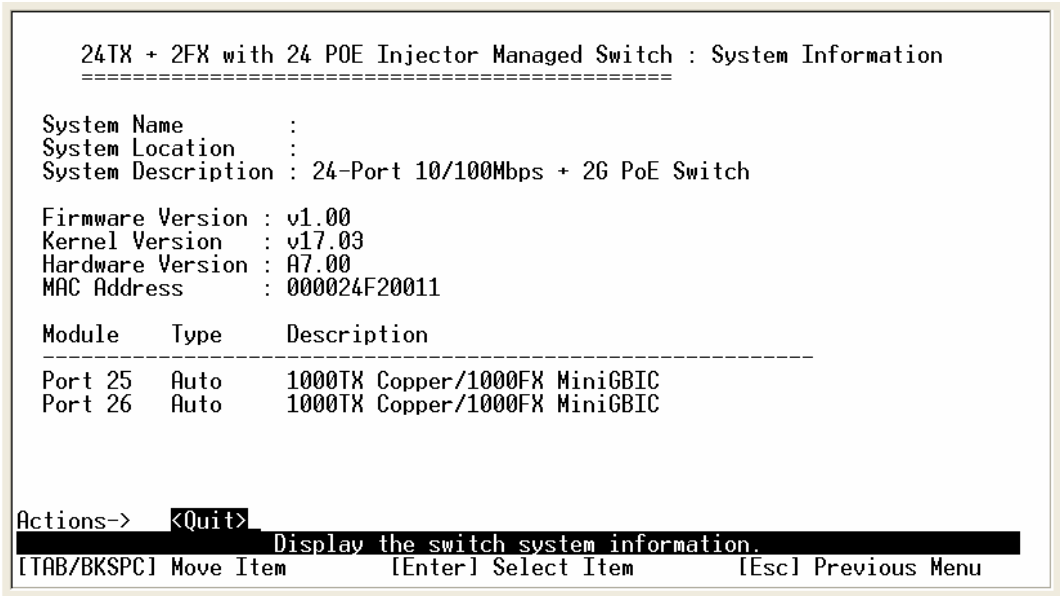
It displays the current port counter information. Select the **<Refresh>** to get newest counter information. Select **<Clear>** to set all ports counter to 0. Select **<Next Page>** to go to next page. Select **<Previous Page>** to back to last page.




Port counter information interface

## System Information

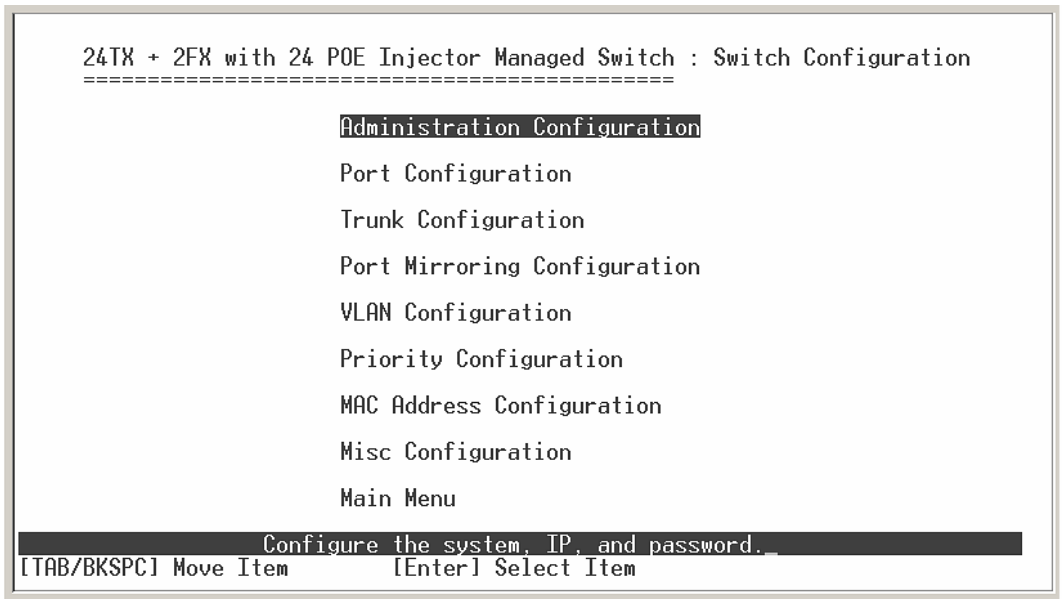
- It displays the system parameter.
- **System Name:** the name of device.
- **System Location:** where the device is located.
- **System Description:** the name of device type.
- **Firmware Version:** the switch's firmware version.
- **Hardware Version:** the switch's Hardware version.
- **Kernel Version:** the system kernel software version.
- **MAC Address:** The unique hardware address assigned by manufacturer.
- **Module Information:** display information of installed module.


24TX + 2FX with 24 POE Injector Managed Switch : System Information
System Name :
System Location :
System Description : 24-Port 10/100Mbps + 2G PoE Switch
Firmware Version : v1.00
Kernel Version : v17.03
Hardware Version : A7.00
MAC Address : 000024F20011
Module Type Description
Port 25 Auto 1000TX Copper/1000FX MiniGBIC
Port 26 Auto 1000TX Copper/1000FX MiniGBIC
Actions-> <Quit>
Display the switch system information.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

System Information interface

## Switch Configuration

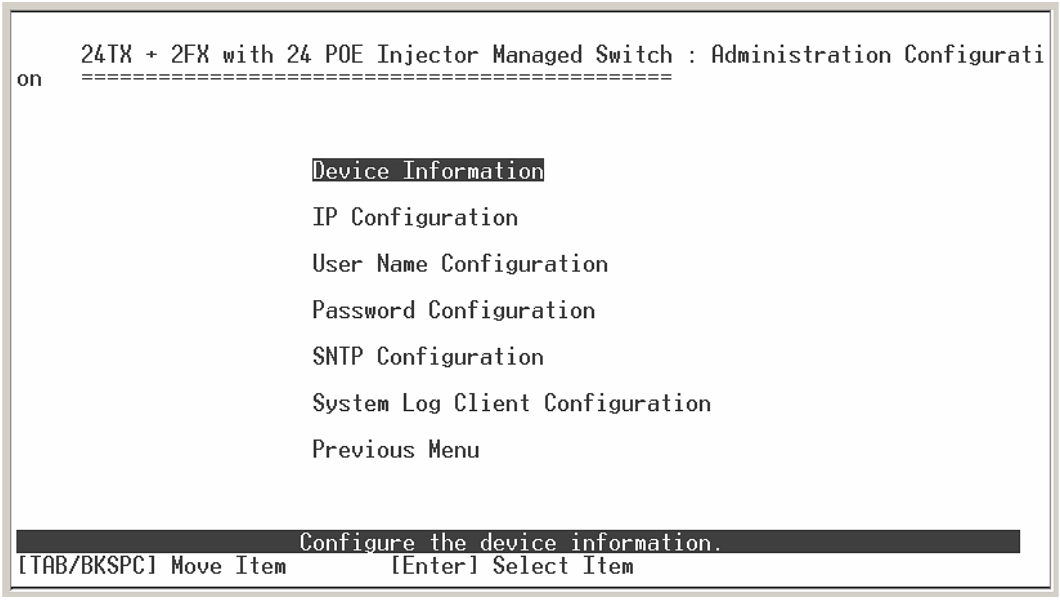
In Switch Configuration, it has 8 main functions – Administration, Port, Trunk, Port Mirroring, VLAN, Priority, MAC Address, and Misc Configuration. Under each function, there are more sub-functions. We will describe in following paragraph.




Switch Configuration interface

### Administration Configuration

In Administration Configuration, you can configuration system parameter, IP, login username, password, and SNTP configuration.

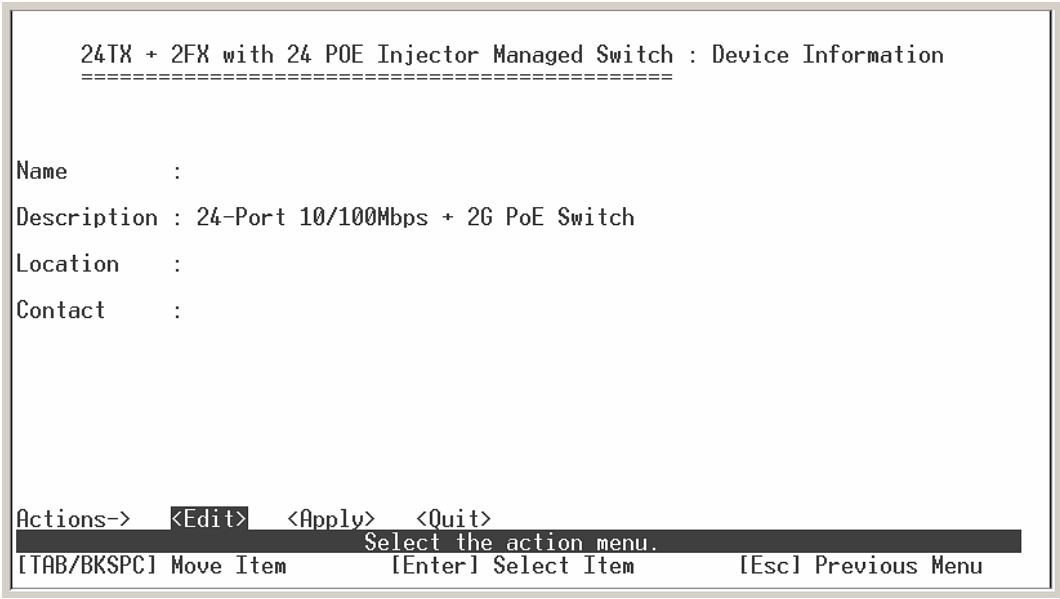



Administration Configuration main interface

### Device Information

You can configure the device information.

1. Select **<Edit>** action to configure.
2. **Name:** assign the name for the switch.
3. **Description:** a short description for the switch.
4. **Location:** the switch location, ex: Taipei.
5. **Contact:** the contact person or information.
6. Select **<Apply>** action to apply the configuration.


24TX + 2FX with 24 POE Injector Managed Switch : Device Information
Name :
Description : 24-Port 10/100Mbps + 2G PoE Switch
Location :
Contact :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Device Information interface

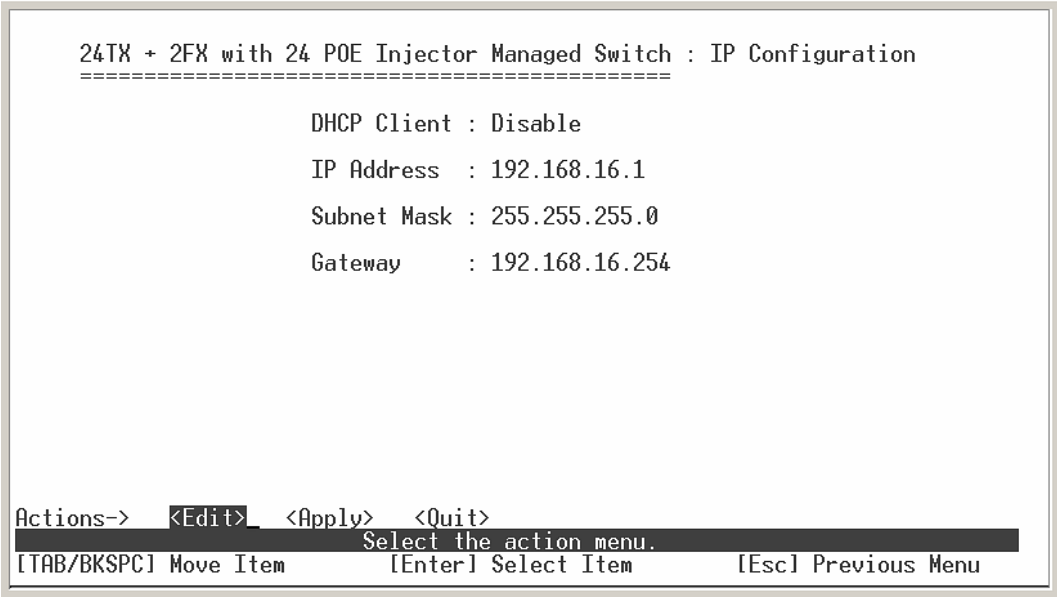
**IP Configuration**

You can configure the IP for this switch. The system has the default IP address. You can re-configure or use the default value.

1. Select the **<Edit>**
2. **DHCP Client:** "**Enable**" is to get IP from DHCP server. "**Disable**" is opposite. The DHCP client function only works if you haven't assigned a static IP address that different than the switch default IP. Once the default IP has been changed the DHCP will not effective and the switch will continue using the manually entered static IP. If you have changed the switch to a static IP address, you can set the IP address back to its default IP address or you can reset the switch back to factory default. And then you can enable the DHCP client function to work.
3. **IP Address:** assign the switch IP address. The default IP is 192.168.16.1.
4. **Subnet Mask:** assign the switch IP subnet mask.
5. **Gateway:** assign the switch gateway. The default value is 192.168.16.254.
6. Select **<Apply>** action to apply the configuration.

---

**[Note]** Always restart the switch after finished the setup to apply the new IP setting.

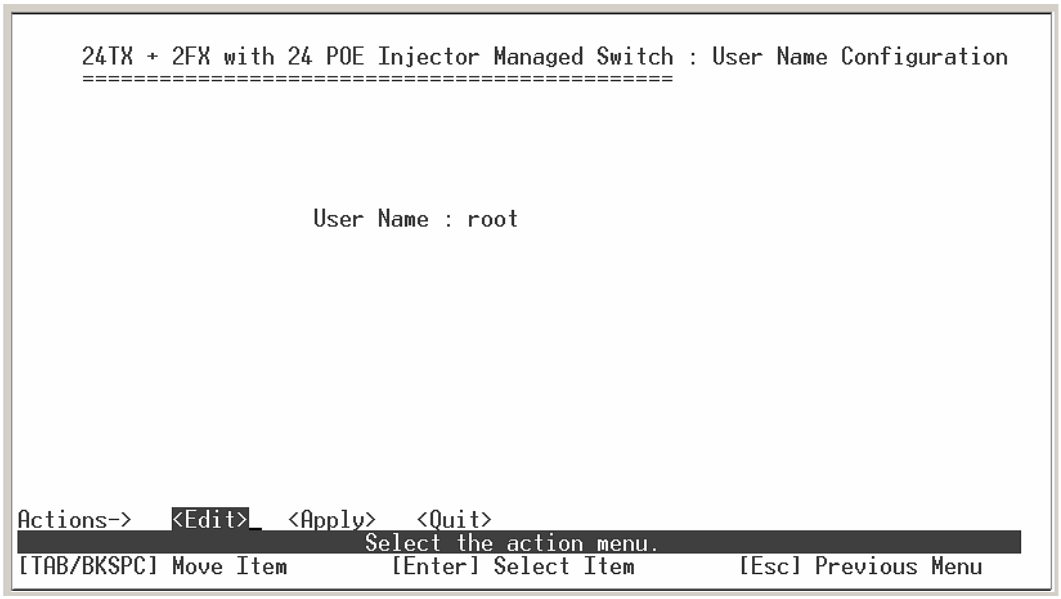

24TX + 2FX with 24 POE Injector Managed Switch : IP Configuration
DHCP Client : Disable
IP Address : 192.168.16.1
Subnet Mask : 255.255.255.0
Gateway : 192.168.16.254
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

IP Configuration interface

### User Name Configuration

You can change the console and web management login user name.

1. Select the **<Edit>**
2. Enter the new user name
3. Select the **<Apply>**

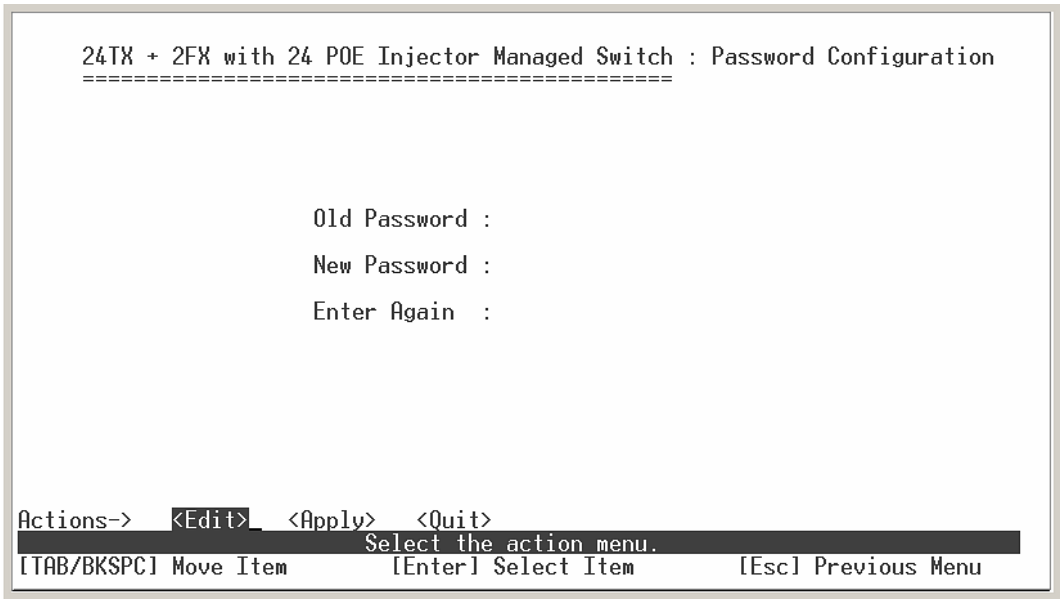

24TX + 2FX with 24 POE Injector Managed Switch : User Name Configuration
User Name : root
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

User Name Configuration interface

### Password Configuration

You can change the console and web management login password.

1. Select the **<Edit>**
2. **Old Password:** enter the old password.
3. **New Password:** enter the new password.
4. **Enter Again:** reenter the new password for confirmation.
5. Select the **<Apply>**

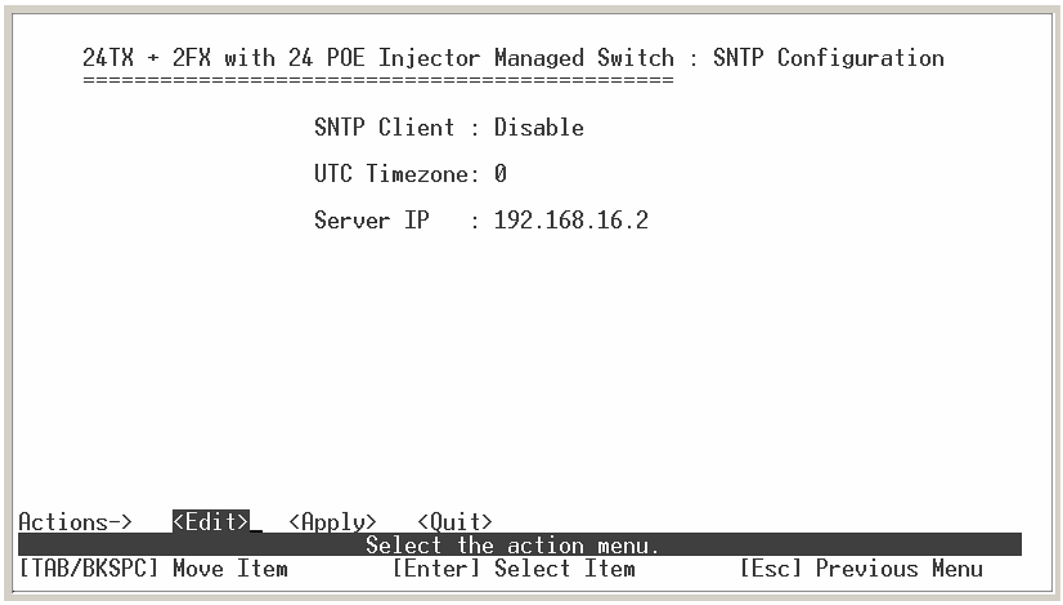

24TX + 2FX with 24 POE Injector Managed Switch : Password Configuration
Old Password :
New Password :
Enter Again :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Password Configuration interface

## SNTP Configuration

You can configure the SNTP (Simple Network Time Protocol) settings. The SNTP allows you to synchronize switch clocks in the Internet.

- **SNTP Client:** enable or disable SNTP function to get the time from the SNTP server.
- **UTC Timezone:** set the switch location time zone.
- **Server IP:** set the SNTP server IP address.

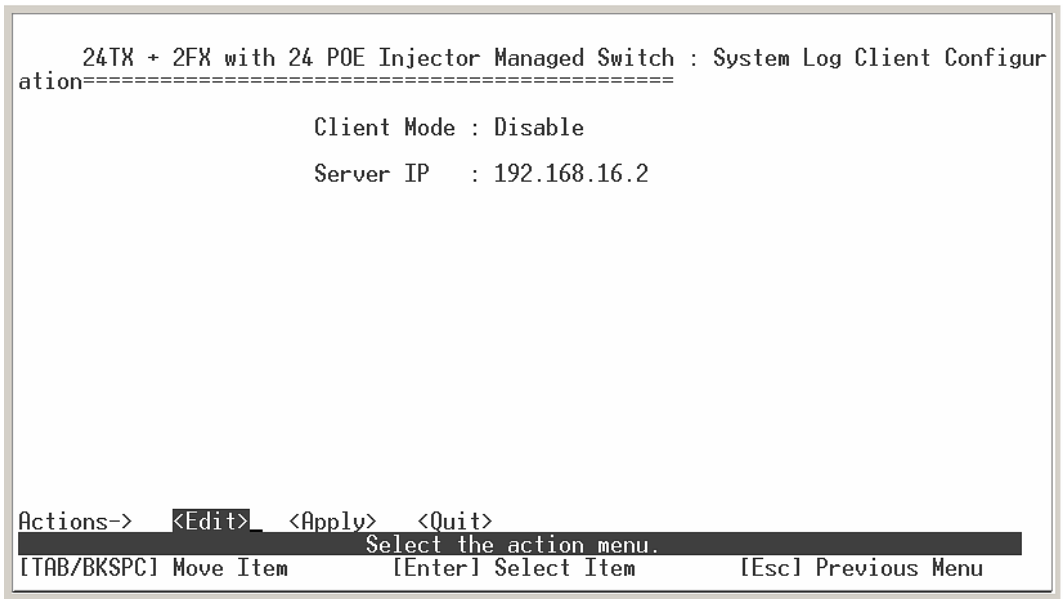

24TX + 2FX with 24 POE Injector Managed Switch : SNTP Configuration
SNTP Client : Disable
UTC Timezone: 0
Server IP : 192.168.16.2
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

SNTP Configuration Interface

## System log Client Configuration

You can configure the switch as the system log client that can view the system log information that from the system log server that you have assigned.

1. Select **<Edit>**
2. **Client Mode:** enabling or disabling the system log client function. "**Enable**" can view the system log information from the assigned system log server.
3. **Server IP:** assigned the system log server IP.
4. Select **<Apply>** to apply the configuration.

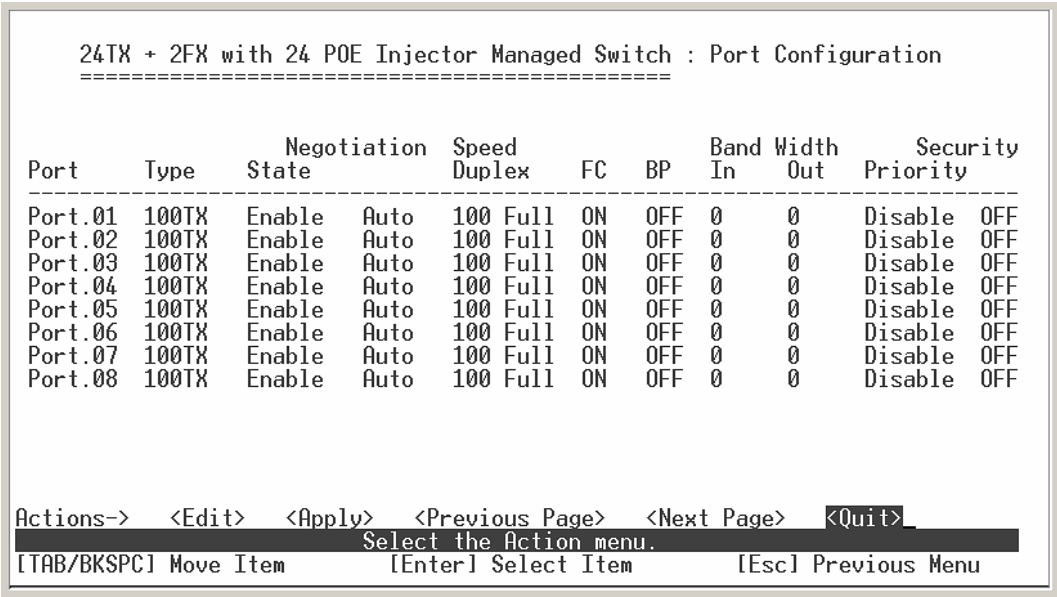

24TX + 2FX with 24 POE Injector Managed Switch : System Log Client Configur
ation==========
Client Mode : Disable
Server IP : 192.168.16.2
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

System log Client Configuration Interface

## Port Configuration

You can set up every port status.

1. Select **<Edit>**
2. Use "**Tab**/**Backspace**" key to move between items.
3. **Type:** display port connection speed.
4. **State:** Current port status. The port can be set to disable or enable mode. If the port setting is disable then will not receive or transmit any packet.
5. **Negotiation:** set auto negotiation function of port.
6. **Speed**/**Duplex:** set the port link speed and duplex mode.
7. **FC:** enable or disable **Flow control** function (Flow control for full duplex link mode).
8. **BP:** enable or disable **Back Pressure** function (Backpressure for half duplex mode).
9. **Bandwidth In**/ **Out:** per port packet transmission rate control. Per level is 100Kbps. It supports individual control method of TX and RX.
10. **Priority:** set packet of port to high or low priority queue.
11. **Security:** enable or disable port security function.
12. Select the **<Apply>**.

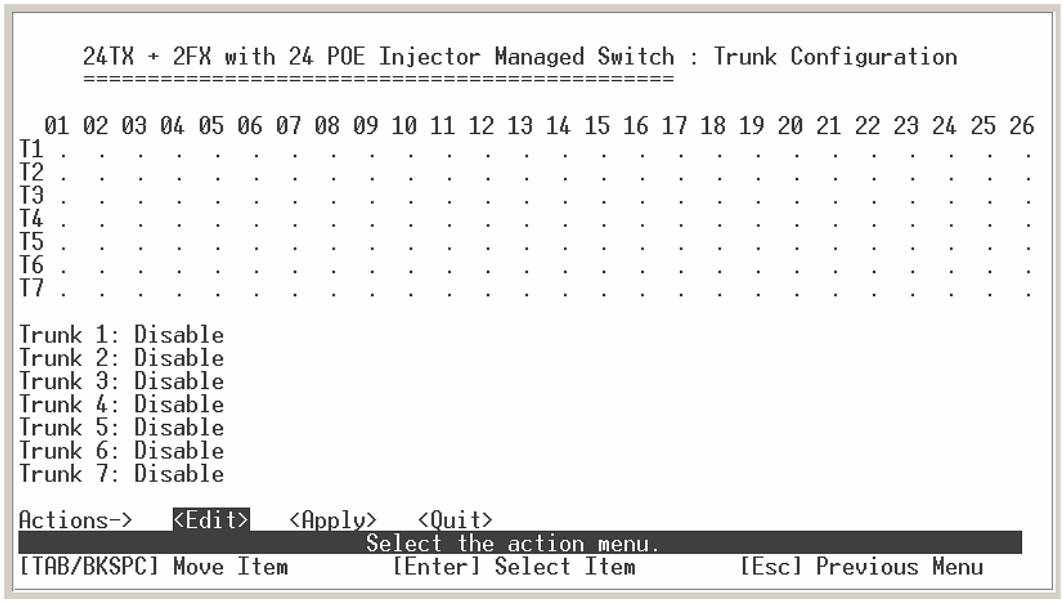

24TX + 2FX with 24 POE Injector Managed Switch : Port Configuration
Port Type Negotiation State Speed Duplex FC BP Band Width In Band Width Out Security Priority
Port.01 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.02 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.03 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.04 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.05 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.06 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.07 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Port.08 100TX Enable Auto 100 Full ON OFF 0 0 Disable OFF
Actions-> <Edit> <Apply> <Previous Page> <Next Page> <Quit>
Select the Action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Port Configuration interface

## Trunk Configuration

You can configure port trunk group.

1. Select **<Edit>**
2. Using “**Tab**” key move to the port that want to be added as trunk group.
3. Using “**Space**” key to mark the port.
4. Using **Tab** key move to **Trunk #** (ex. Trunk1, Trunk2…) to change the Trunk # value to **Static**, **LACP**, or **Disable**.
5. Apply the configuration by selecting **<Apply>**.

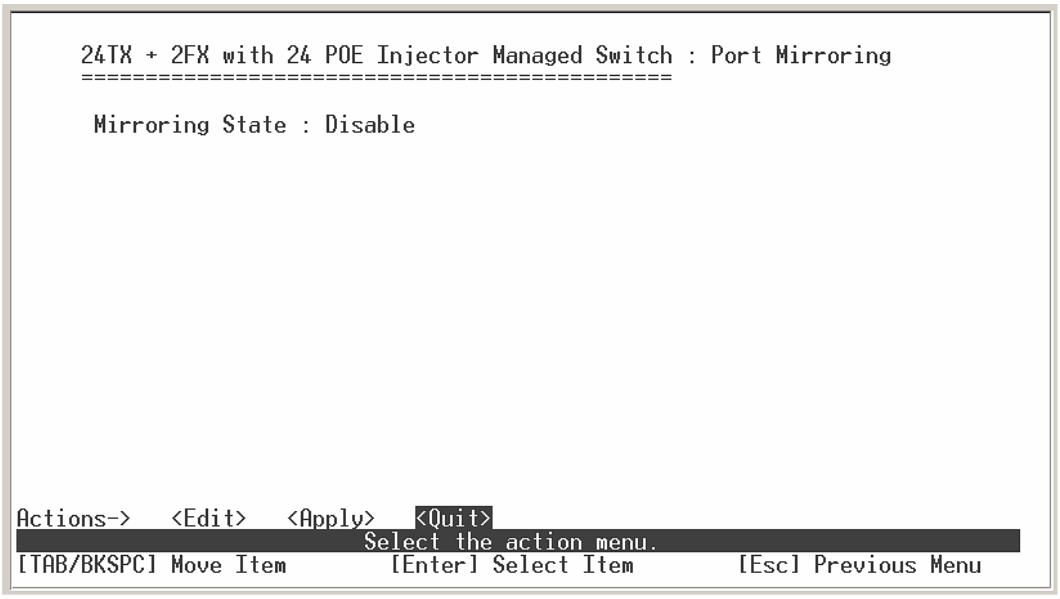

24TX + 2FX with 24 POE Injector Managed Switch : Trunk Configuration
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
T1
T2
T3
T4
T5
T6
T7
Trunk 1: Disable
Trunk 2: Disable
Trunk 3: Disable
Trunk 4: Disable
Trunk 5: Disable
Trunk 6: Disable
Trunk 7: Disable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Trunk Configuration interface

## Port Mirroring Configuration

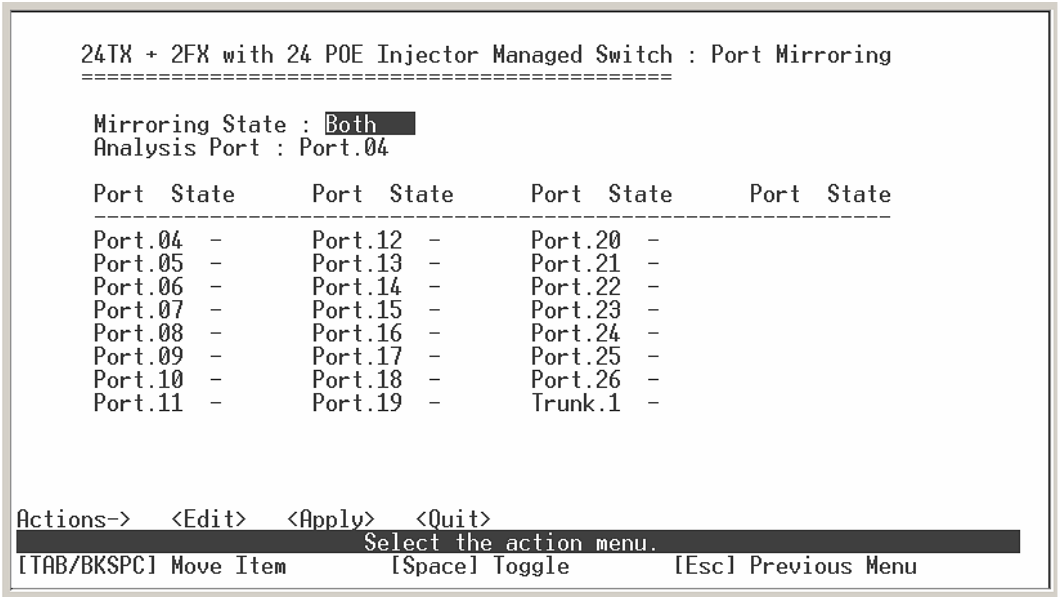
The port mirroring is a method for monitor traffic of switched networks. The specific port can monitor traffic through the mirror ports. The monitored ports in or out traffic will be duplicated into monitoring port.

1. Select the **<Edit>**
2. **Mirroring State:** select the port-mirroring mode. The default value is "**Disable**". To start port mirroring, you must select one of port mirroring mode.
   - **RX:** RX packet only
   - **TX:** TX packet only
   - **Both:** RX and TX packet


24TX + 2FX with 24 POE Injector Managed Switch : Port Mirroring
Mirroring State : Disable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Port Mirroring interface

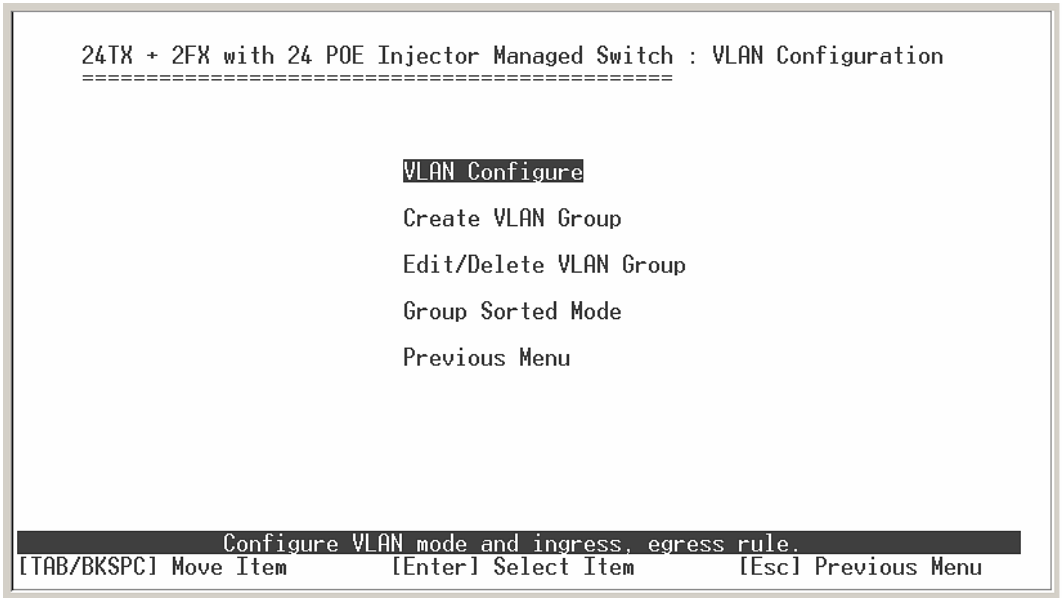
3. **Analysis port:** Set the destination port of mirroring packet. All of the packets of mirroring port will be duplicated and sent to Analysis port.
4. **Port State:** Select the ports that want to be mirrored.
5. Use "**Space**" key to mark the mirroring port can.
6. Select the **<Apply>**.


24TX + 2FX with 24 POE Injector Managed Switch : Port Mirroring
Mirroring State : Both
Analysis Port : Port.04
Port State Port State Port State Port State
Port.04 - Port.12 - Port.20 -
Port.05 - Port.13 - Port.21 -
Port.06 - Port.14 - Port.22 -
Port.07 - Port.15 - Port.23 -
Port.08 - Port.16 - Port.24 -
Port.09 - Port.17 - Port.25 -
Port.10 - Port.18 - Port.26 -
Port.11 - Port.19 - Trunk.1 -
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Space] Toggle [Esc] Previous Menu

Port Mirroring interface

## VLAN Configuration

You can configure VLAN group in VLAN Configuration. There are four functions in VLAN Configuration mode: VLAN Configuration, Create a VLAN Group, Edit/Delete VLAN Group and Group Sorted Mode. Follow the below description to configure VLAN.


24TX + 2FX with 24 POE Injector Managed Switch : VLAN Configuration
VLAN Configure
Create VLAN Group
Edit/Delete VLAN Group
Group Sorted Mode
Previous Menu
Configure VLAN mode and ingress, egress rule.
[TAB/BKSPC] Move Item
[Enter] Select Item
[Esc] Previous Menu

VLAN Configuration Main interface

### VLAN Configure

Before starting to configure VLAN, you must select the VLAN mode in VLAN Configure function. Otherwise, user cannot create any new VLAN.

1. Select the **<Edit>**.
2. Select the VLAN mode by using "**Tab**" key. There are two VLAN modes: PortBase mode and 802.1Q mode. When select the 802.1Q VLAN mode, you need to configuration the following settings.
   - **802.1Q VLAN mode:** configuration VLAN ID, Ingress Filter, and Acceptable Frame Type.
     - **VLAN ID Range:** Type the PVID. The PVID will only assign to the Ingress packets, not for all packets.

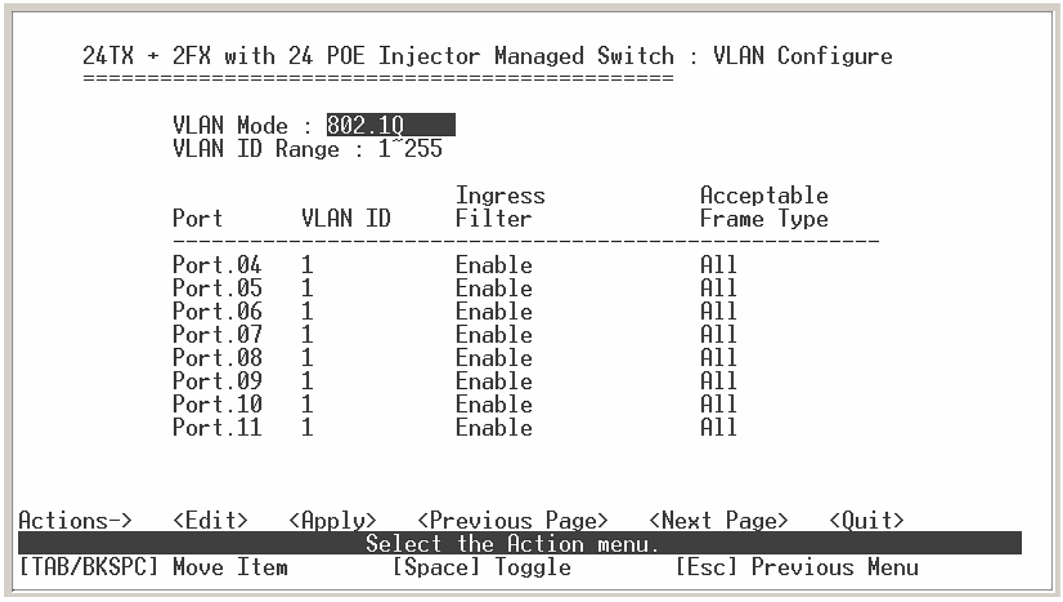
- ✧ **Ingress Filter:** It matches that Ingress Filtering Rule 2 on web. Drop untagged frame. Press "**Space**" key to select drop or forward the untagged frame.
- ✧ **Acceptable Frame type:** It matches that Ingress Filtering Rule 1 on web. Only forward packets with VID matching this port's configured VID. Press "**Space**" key to choose "forward" or "drop" the frame that VID not matching this port's configured VID.

3. Select **<Apply>** to apply the configuration.

---

**[Note]** when the VLAN mode changed that user has to restart the switch for valid value.

---




VLAN Configure interface

**Create VLAN Group**

- ■ **Create Port-Based VLAN**

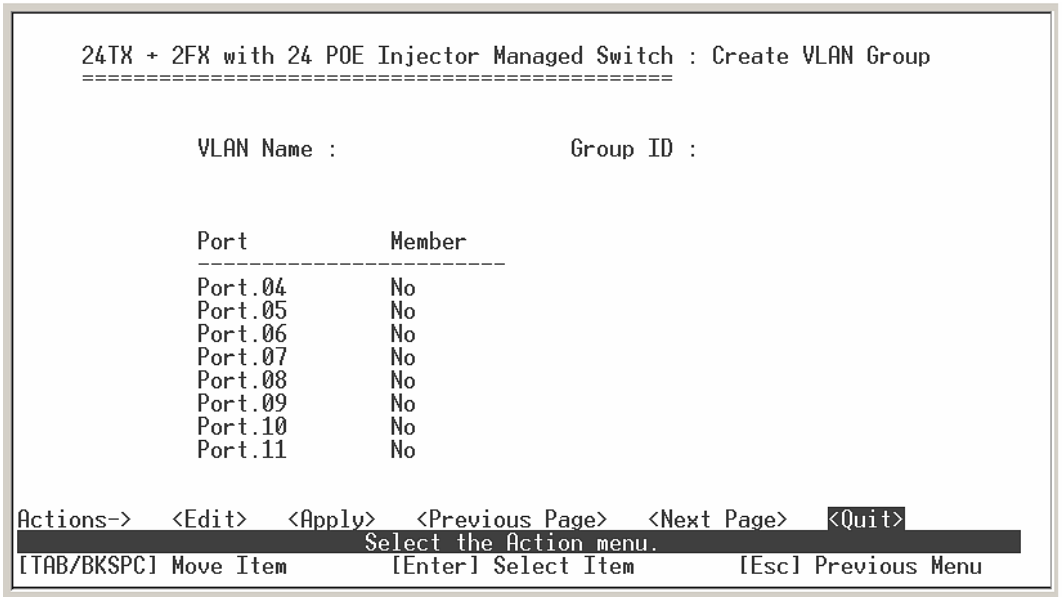
1. Select **<Edit>.**
2. **VLAN Name:** Type a name for the new VLAN, ex: VLAN01.
3. **Group ID:** Type the VLAN group ID.

4. **Member:** Press ”**Space**” key to change the member value. There are two types to selected:
   a. **Member:** the port is a member port.
   b. **NO:** it means that port is NOT a member port.
5. Press **“ESC”** key to go back action menu line.
6. Select **<Apply>** to apply the configuration.

---

**[Note]** If you have configured the trunk groups, you can see it (ex: Trunk1, Trunk2…) in the port list. You also can configure the trunk group as the VLAN member.

---



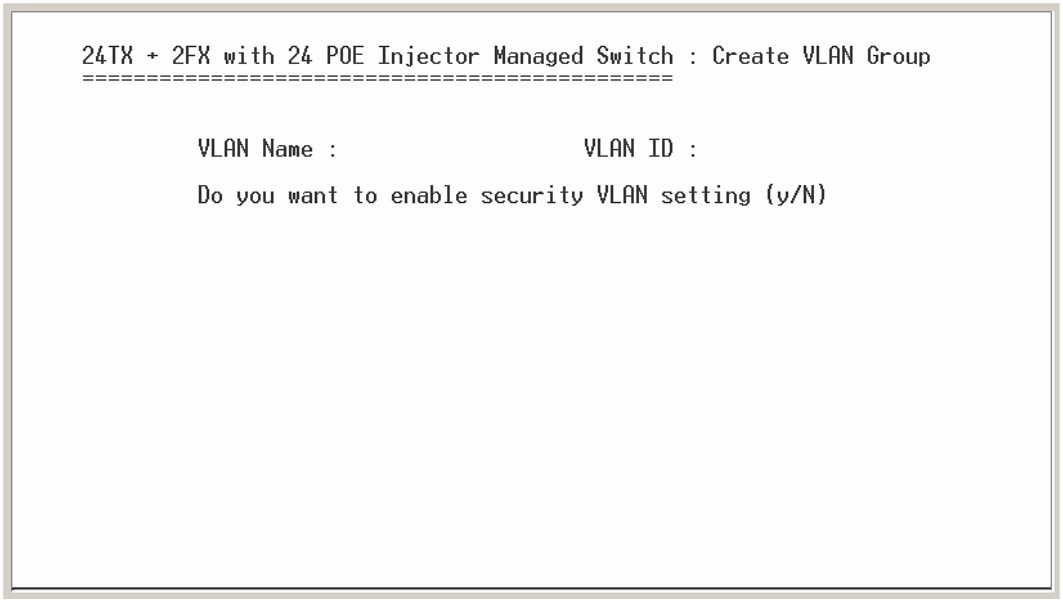

Create VLAN Group: PortBase interface

- **Create 802.1Q VLAN**

1. **Enable security VLAN setting:** select to enable or disable security VLAN group. When you select to enable security VLAN group, only the members in this VLAN group can access to the switch. The steps of setting security VLAN refer to the following step 2~ 8. After you configured the security VLAN group, you can continue to create other VLAN groups. When you didn’t select to configure security VLAN group, then just create VLAN group refer to following step 2 ~ 8.

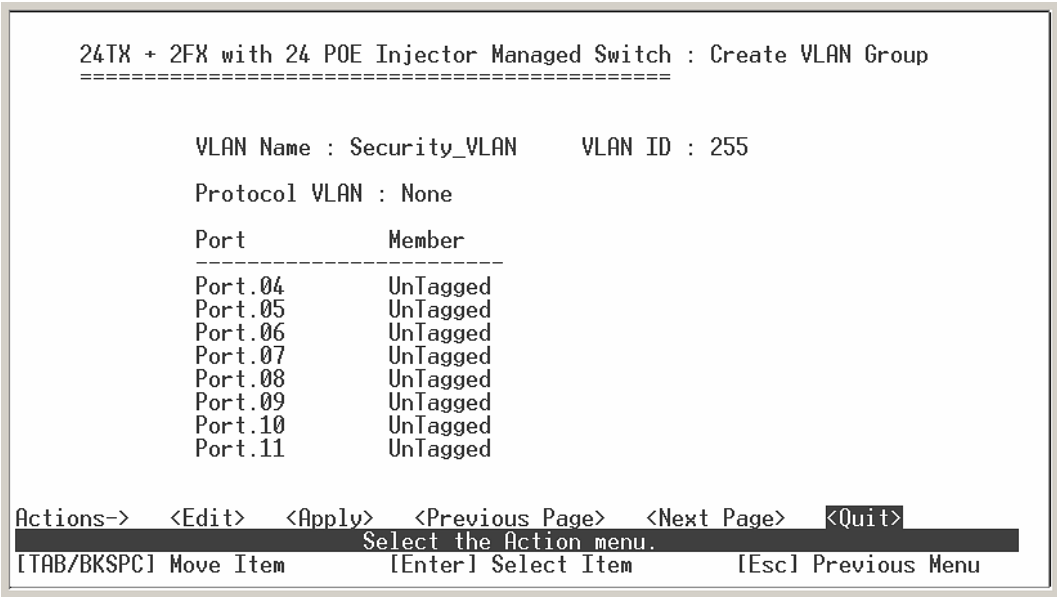
---

**[Note]** There is only one security VLAN group.


24TX + 2FX with 24 POE Injector Managed Switch : Create VLAN Group
VLAN Name :
VLAN ID :
Do you want to enable security VLAN setting (y/N)

2. Select **<Edit>.**
3. **VLAN Name:** Type a name for the new VLAN, ex: VLAN01.
4. **VLAN ID:** Type a VID. The default is 1. There are 256 VLAN groups to provided configure.
5. **Protocol VLAN:** Press "**Space**" key to choose protocols type.
6. **Member:** Press "**Space**" key to change the member value.
   - **Untagged:** this port is the member port of this VLAN group and outgoing frames are NO VLAN-Tagged frames.
   - **Tagged:** this port is the member port of this VLAN group and outgoing frames are VLAN-Tagged frames.
   - **NO:** it means that the port is NOT member of this VLAN group.
7. Press "**ESC**" key to go back action menu line.
8. Select **<Apply>** to apply the configuration.

**[Note]** If the trunk groups exist, you can see it (ex: Trunk1, Trunk2…) on the port list, and you can configure it is the member of the VLAN or not.




Create VLAN Group: 802.1Q interface

### Edit / Delete VLAN Group

User can edit or delete a VLAN group.

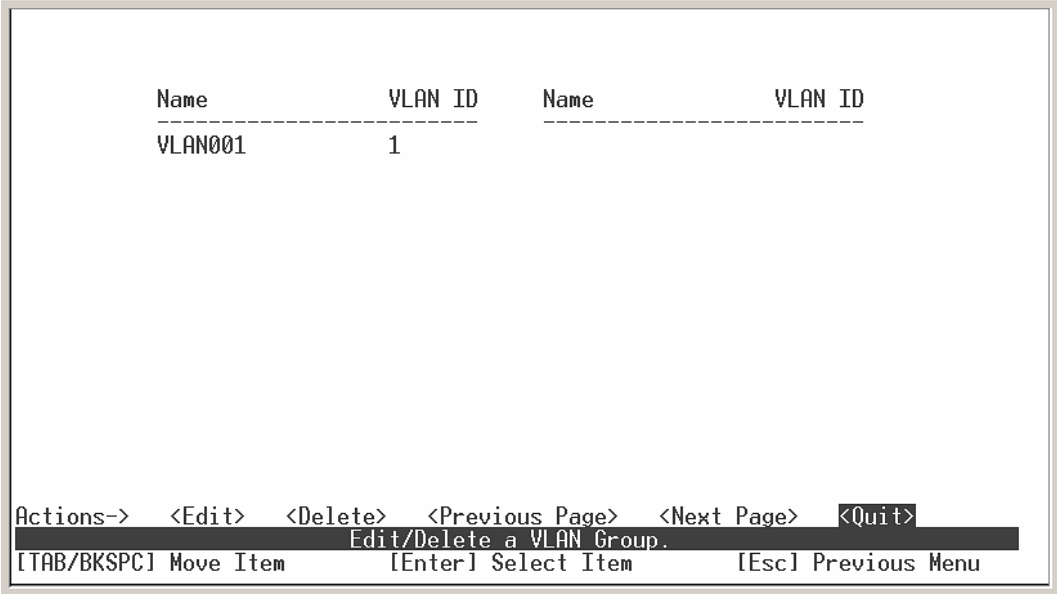
1. Select **<Edit>** or **<Delete>** action.
2. Select the VLAN group that you want to edit or delete, then press enter.
3. In **<Edit>** action, user can modify the member port and remove some member ports from this VLAN group.

---

**[Note]**

1. The VLAN Name and VLAN ID cannot modify.
2. In 802.1Q VLAN mode, the default VLAN can't be deleting.
3. In Port Base VLAN mode, there is no default VLAN.

---



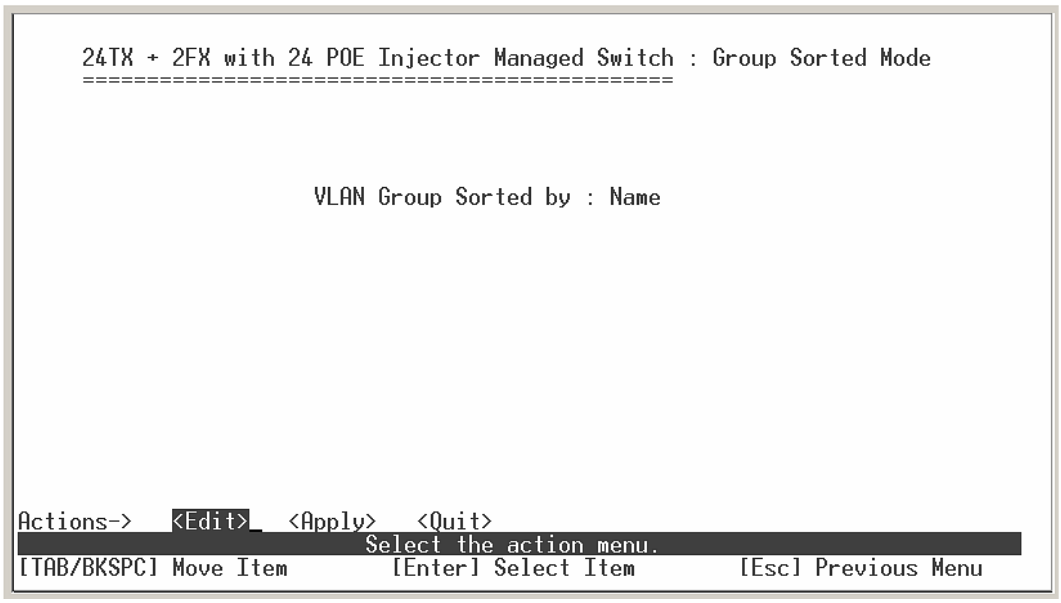

Edit/Delete a VLAN Group interface

### Group Sorted Mode

You can select VLAN groups sorted mode: (1) **Name** (2) **VLAN ID**.

In the Edit/Delete a VLAN group page will display the result.

1. Select **<Edit>**
2. Use "**Space**" key to select the sort mode.
3. Select **<Apply>**

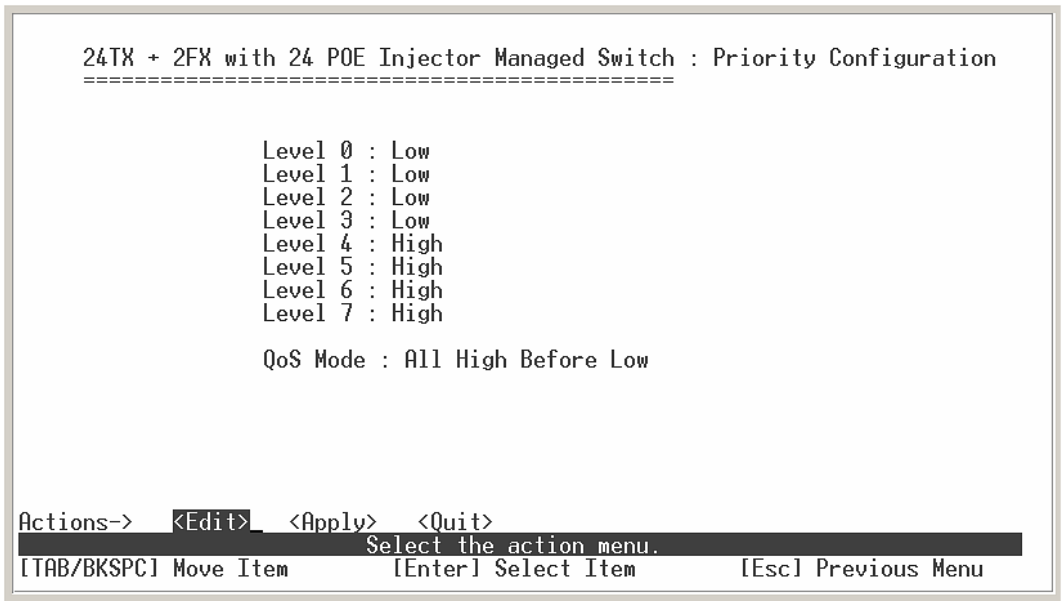

24TX + 2FX with 24 POE Injector Managed Switch : Group Sorted Mode
VLAN Group Sorted by : Name
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Group Sorted Mode interface

## Priority Configuration

You can configure port priority level. There are 0~7-priority level can map to high or low queue.

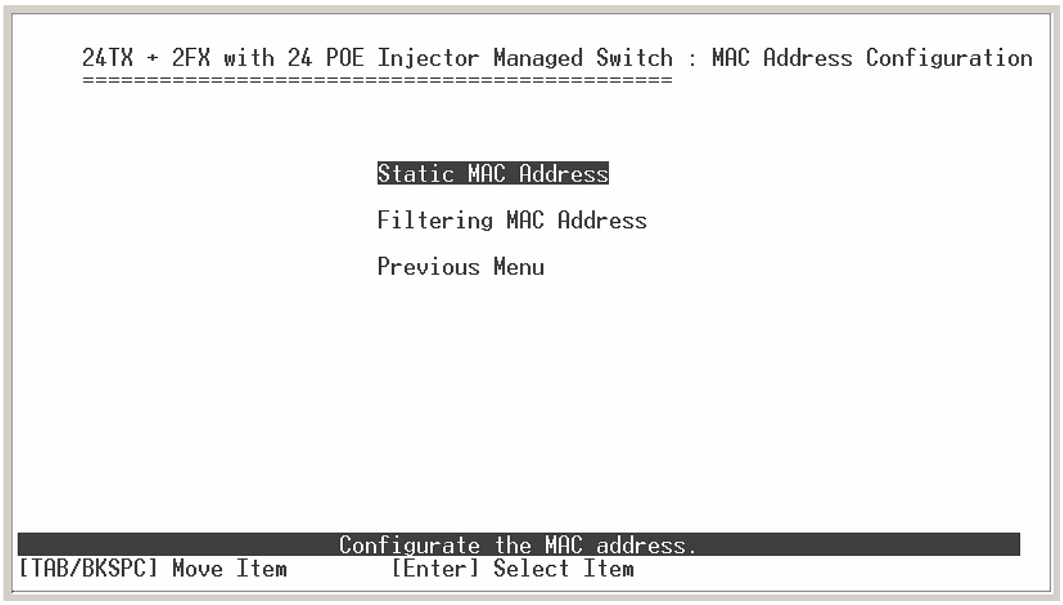
1. Select **<Edit>**.
2. Press "**Space**" key to select the priority level mapping to high or low queue.
3. **Qos Mode:** User can select the ratio of high priority packets and low priority packets.
   - **First Come First Service:** the switch will process the packet that is coming first.
   - **All High Before low:** the packet priority is high will be process before the packet priority is low.
   - **Weight Round Ration 2:1:** the switch will process 2 high priority packet first, the process 1 low priority packet.
   - **Weight Round Ration 3:1:** the switch will process 3 high priority packet first, the process 1 low priority packet.
   - **Weight Round Ration 4:1:** the switch will process 4 high priority packet first, the process 1 low priority packet.
   - **Weight Round Ration 5:1:** the switch will process 5 high priority packet first, the process 1 low priority packet.
   - **Weight Round Ration 6:1:** the switch will process 6 high priority packet first, the process 1 low priority packet.
   - **Weight Round Ration 7:1:** the switch will process 7 high priority packet first, the process 1 low priority packet.
4. Press "**ESC**" goes back action menu line.
5. Select **<Apply>** to apply all configure value.


24TX + 2FX with 24 POE Injector Managed Switch : Priority Configuration
Level 0 : Low
Level 1 : Low
Level 2 : Low
Level 3 : Low
Level 4 : High
Level 5 : High
Level 6 : High
Level 7 : High
QoS Mode : All High Before Low
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Priority Configuration interface

## MAC Address Configuration

When you add a static MAC address, it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again. You can add / modify / delete a static MAC address.


24TX + 2FX with 24 POE Injector Managed Switch : MAC Address Configuration
Static MAC Address
Filtering MAC Address
Previous Menu
Configurate the MAC address.
[TAB/BKSPC] Move Item
[Enter] Select Item

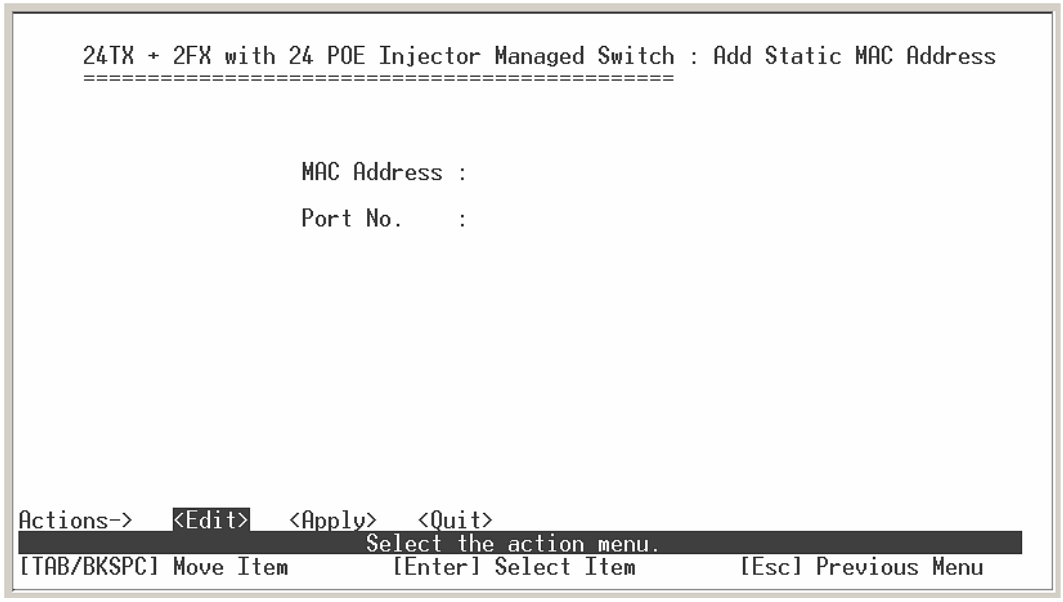
MAC Address Configuration interface

## Static MAC Address

### ■ Add the Static MAC Address

You can add static MAC address in switch MAC table.

1. Select **<Add>** → **<Edit>** key to add the static MAC address.
2. **MAC Address:** Enter the MAC address of the port that should permanently forward traffic, regardless of the device network activity.
3. **Port No.:** press "**Space**" key to select the port number.
4. Press "**ESC**" to go back action menu line.
5. Select **<Apply>** to apply all configure value.


24TX + 2FX with 24 POE Injector Managed Switch : Add Static MAC Address
MAC Address :
Port No. :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Add Static MAC Address interface

### ■ Edit static MAC address

1. Press **<Edit>**.
2. Choose the MAC address that you want to modify and then press "**Enter**".
3. Press **<Edit>** key to modify.
4. Press "**ESC**" to go back action menu line.
5. Select **<Apply>** to apply all configure value.

### ■ Delete static MAC address

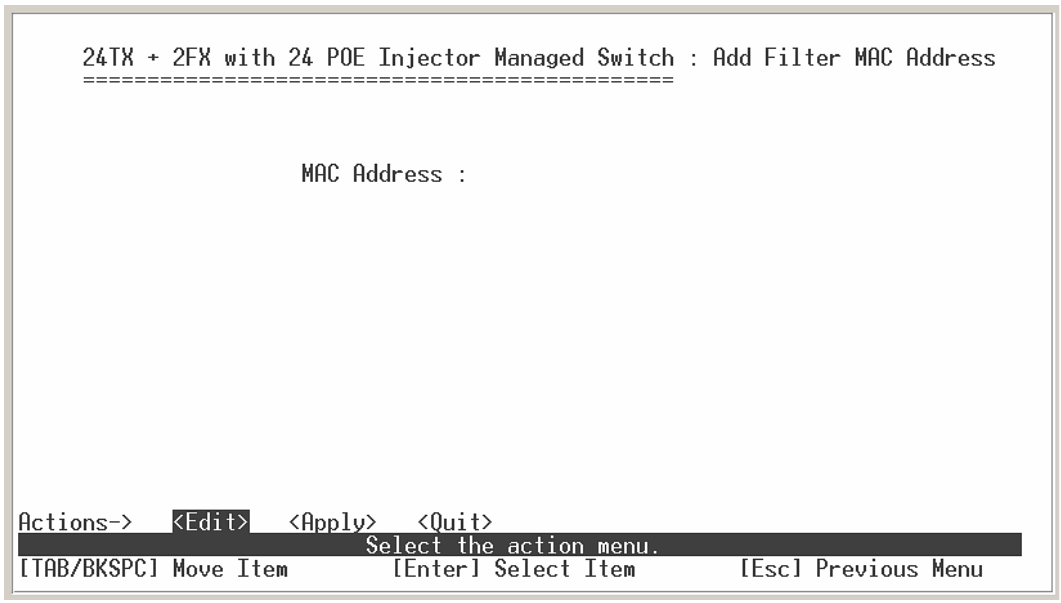
1. Press **<Delete>** key.
2. Choose the MAC address that you want to delete and then press "**Enter**".
3. When pressing "**Enter**" will complete deletion.

### Filtering MAC Address

You can add, delete, and edit filtering MAC address.

- **Add the Filtering MAC Address**

1. Select **<Add>** → **<Edit>** key to add the static MAC address.
2. **MAC Address:** Enter the MAC address that you want to filter.
3. Press "**ESC**" to go back action menu line.
4. Select **<Apply>** to apply all configure value.


24TX + 2FX with 24 POE Injector Managed Switch : Add Filter MAC Address
MAC Address :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Add Filtering MAC Address interface

- **Edit Filtering MAC address**

1. Press **<Edit>** key to modify a static Filtering address.
2. Choose the MAC address that you want to modify and then press "**Enter**".
3. Select **<Edit>** key to modify.

4. Press “**ESC**” to go back action menu line
5. Select **<Apply>** to apply all configure value.

- **Delete Filtering MAC address**

1. Press **<Delete>** to delete a Filtering MAC address.
2. Choose the MAC address that you want to delete and then press “**Enter**”.

## Misc Configuration

You can configure the switch parameters.

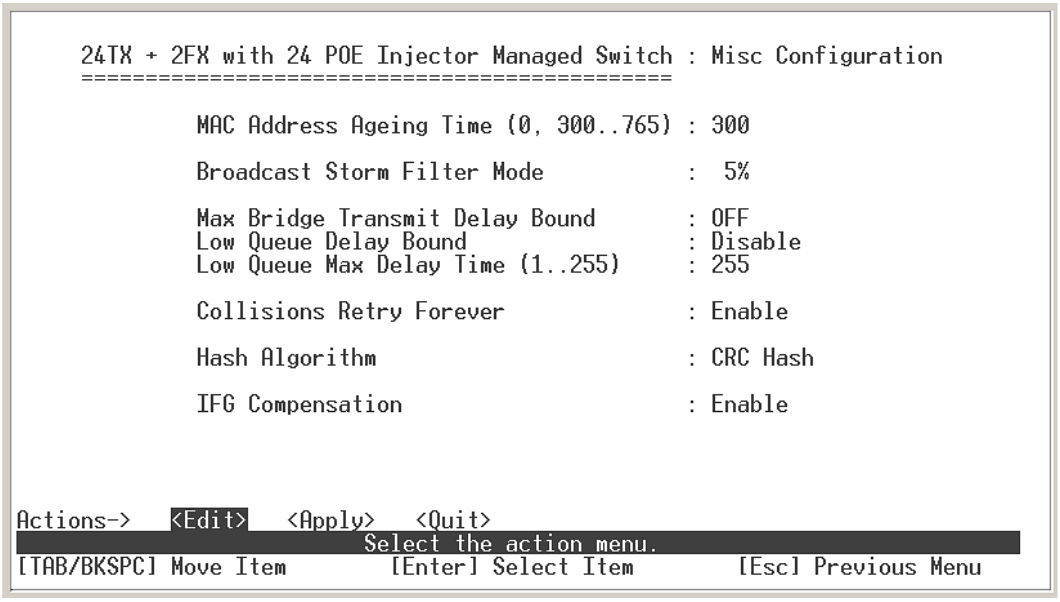
- **MAC Address Ageing Time:** MAC address table refresh time setting. Type the number of seconds that an inactive MAC address remains in the switch’s address table. The valid range is 0, 300~765 seconds. Default is 300 seconds.
- **Broadcast Storm Filter mode:** configure the broadcast storm filter mode. The valid threshold values are 5%, 10%, 15%, 20%, 25%, and N/A. The port will be block cause of broadcast packet is over the percentage of traffic.
- **Max Bridge Transmit Delay Bound:** Limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. Press **Space** key to set the time. This valid value are 1sec, 2sec, 4sec and off. Default is off.
- **Low Queue Delay Bound:** Limit the low priority packets queuing time in switch. If enable, the low priority packet stays in switch exceed Low Queue Max Delay Time, it will be sent. Press **Space** key to enable or disable this function.
- **Low Queue Max Delay Time:** To set the time that low priority packets queuing in switch. Default Max Delay Time is 255ms. The valid range is 1~255 ms.

---

**[Note]:** Make sure of “Max bridge transit delay bound control” is enabled before enable Low Queue Delay Bound, because Low Queue Delay Bound must be work under “Max bridge transit delay bound control” is enabled situation.

---

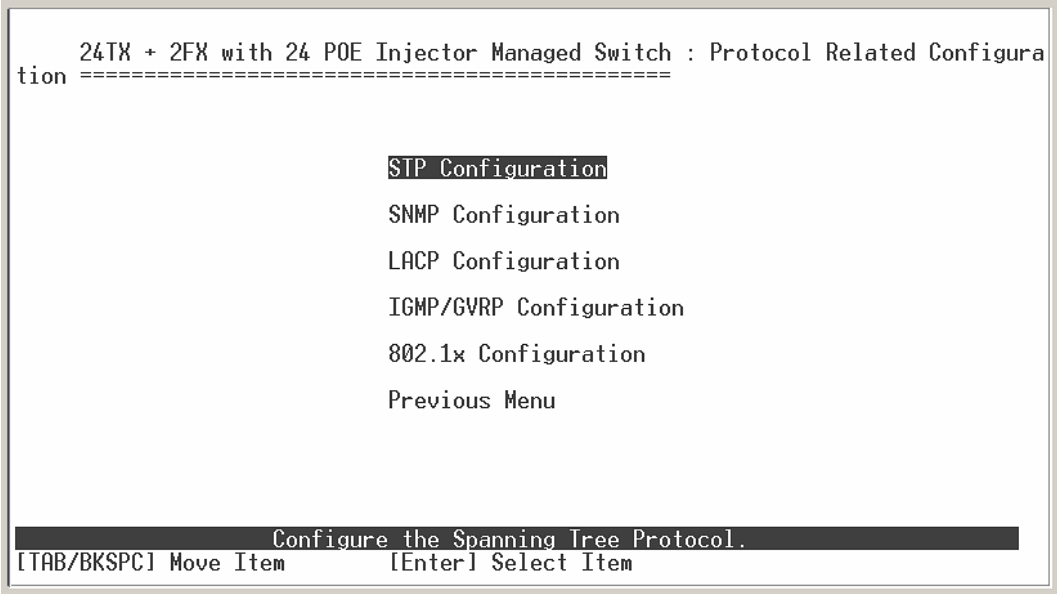
- **Collisions Retry Forever:** Disable In half duplex, if happen collision will retry 48 times and then drop frame. Enable – In half duplex, if happen collision will retry forever
- **Hash Algorithm:** This Hash Algorithm is for hardware maintain on MAC table calculation. Provide CRC or Direct Map
- **IFG compensation:** Disable or Enable


24TX + 2FX with 24 POE Injector Managed Switch : Misc Configuration
MAC Address Ageing Time (0, 300..765) : 300
Broadcast Storm Filter Mode : 5%
Max Bridge Transmit Delay Bound : OFF
Low Queue Delay Bound : Disable
Low Queue Max Delay Time (1..255) : 255
Collisions Retry Forever : Enable
Hash Algorithm : CRC Hash
IFG Compensation : Enable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Misc Configuration interface

## Protocol Related Configuration

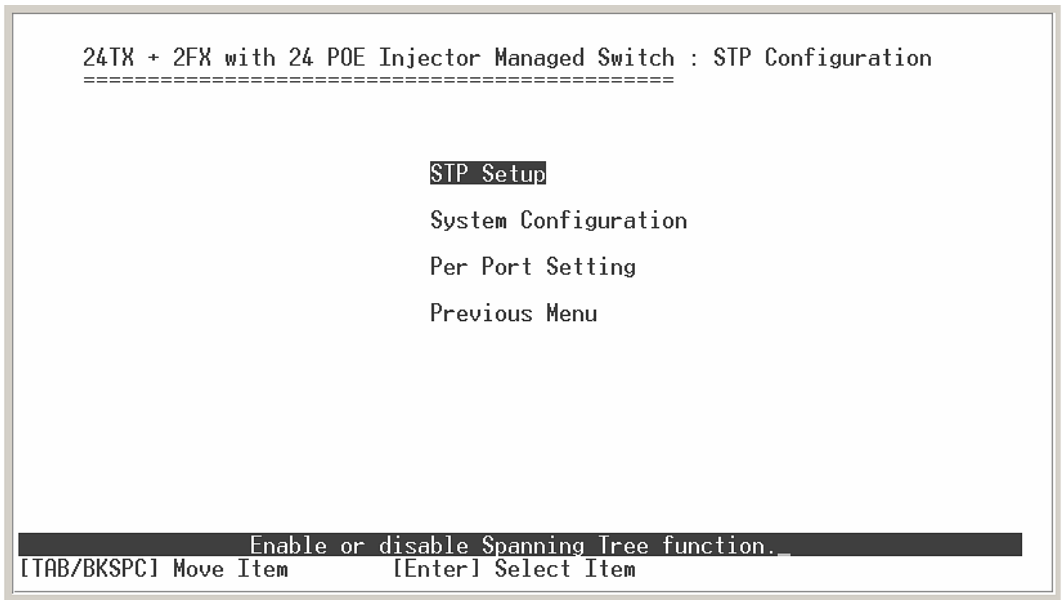
You can configure Spanning Tree Protocol, SNMP, LACP, IGMP/GVRP, and 802.1x in Protocol Relate Configuration section.




Protocol Relate Configuration interface

### STP Configuration

Spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network.

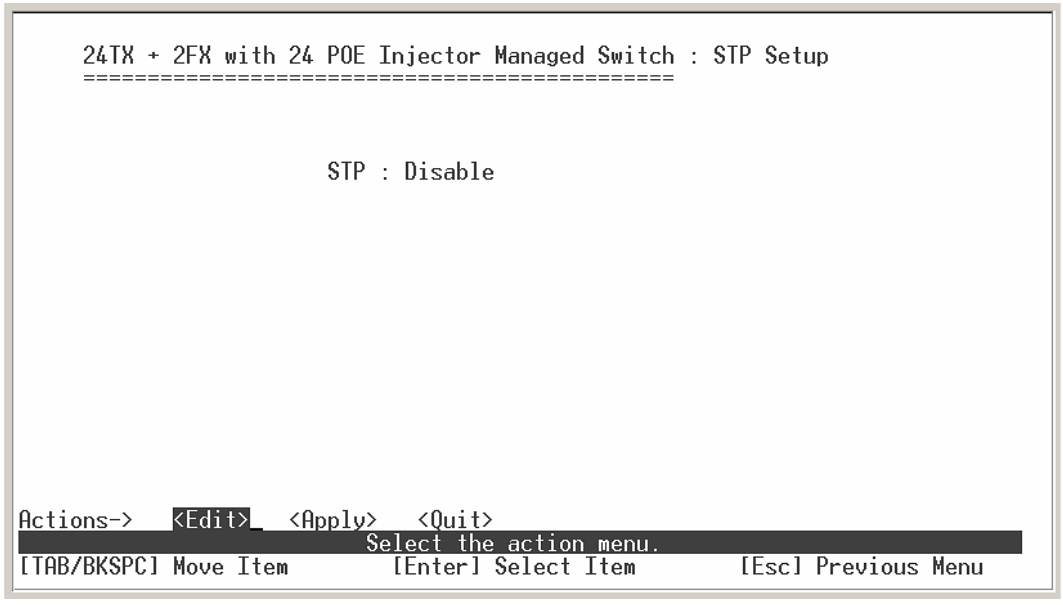

24TX + 2FX with 24 POE Injector Managed Switch : STP Configuration
STP Setup
System Configuration
Per Port Setting
Previous Menu
Enable or disable Spanning Tree function.
[TAB/BKSPC] Move Item
[Enter] Select Item

STP Configuration interface

## STP Setup

You must enable Spanning Tree function before configuration.

1. Select **<Edit>**
2. Use "**Space**" key to select the option.
3. Select **<Apply>**.

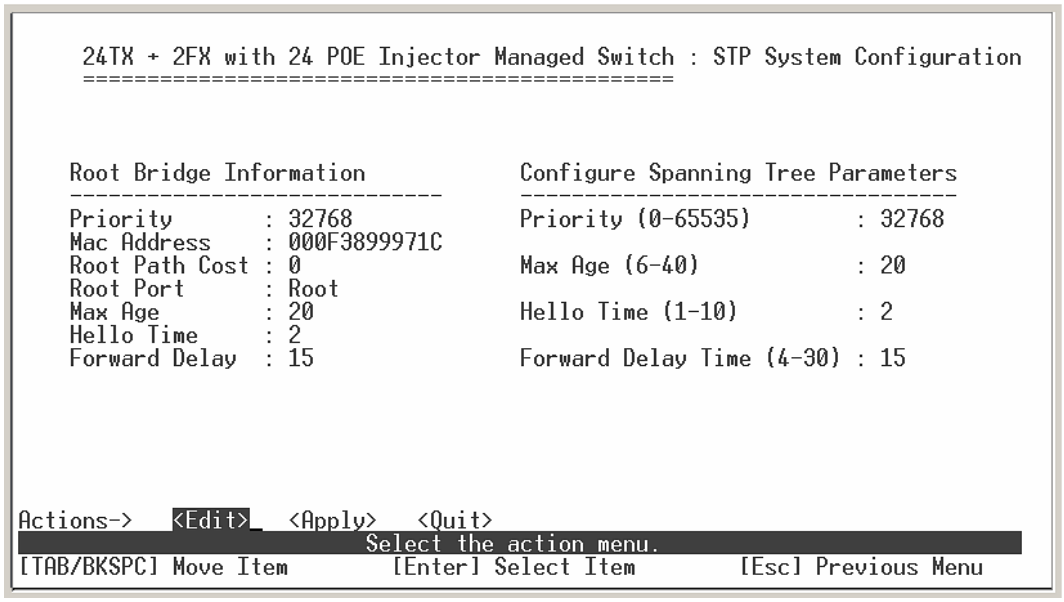

24TX + 2FX with 24 POE Injector Managed Switch : STP Setup
STP : Disable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item
[Enter] Select Item
[Esc] Previous Menu

STP Setup interface

### System Configuration

You can configure the STP system parameter after enable the STP function. You can view spanning tree information about the Root Bridge on the left.

1. Select **<Edit>**
2. **Priority (0~65535):** assign path priority number.
3. **Max Age (6~40):** the maximum path age
4. **Hello Time (1~10):** the time that controls switch sends out the BPDU packet to check STP current status.
5. **Forward Delay Time (4~30):** forward delay time.
6. Select **<Apply>**.


24TX + 2FX with 24 POE Injector Managed Switch : STP System Configuration
Root Bridge Information
Priority : 32768
Mac Address : 000F3899971C
Root Path Cost : 0
Root Port : Root
Max Age : 20
Hello Time : 2
Forward Delay : 15
Configure Spanning Tree Parameters
Priority (0-65535) : 32768
Max Age (6-40) : 20
Hello Time (1-10) : 2
Forward Delay Time (4-30) : 15
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

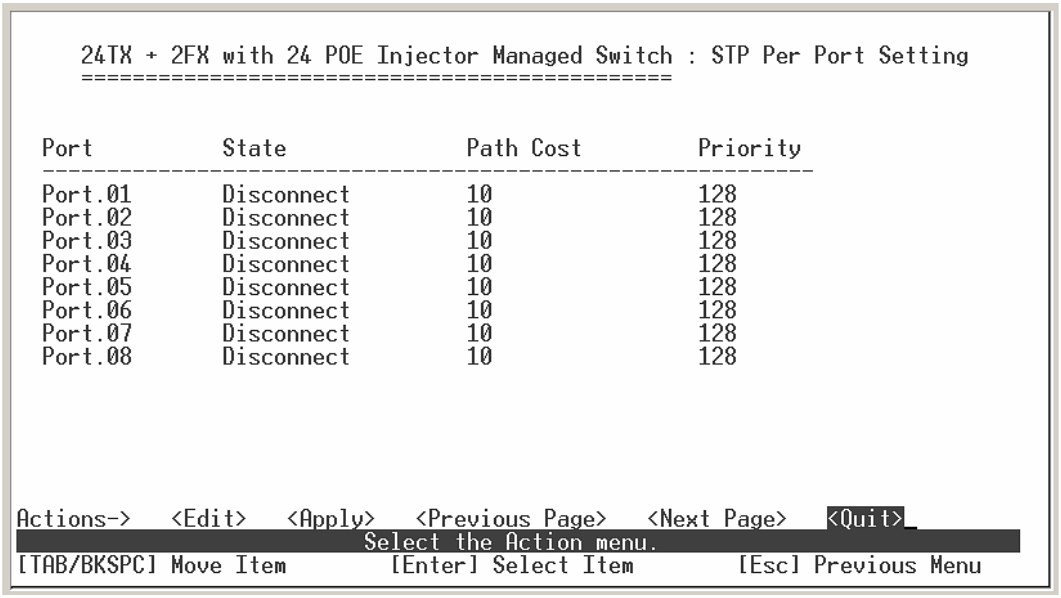
STP System Configuration interface

### Per Port Setting

1. Select **<Edit>**.
2. **Path Cost:** specifies the path cost of the port that switch uses to determine which port are the forwarding ports.
3. **Priority:** This is mean port priority; you can make it more or less likely to become the

root port.

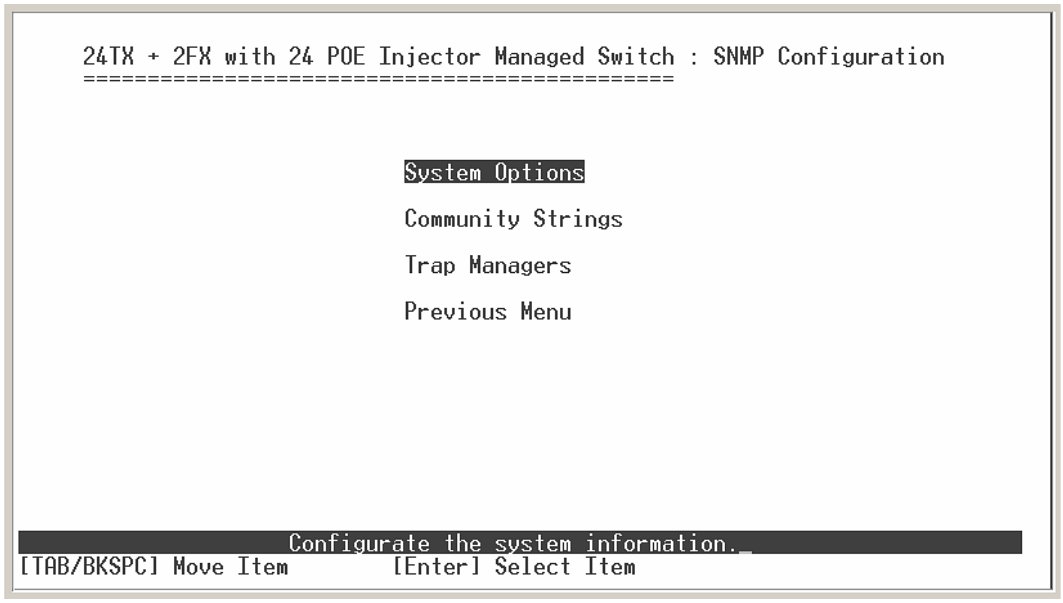
4. Press “**ESC**” goes back action menu line.
5. Select **<Apply>** to apply all configure value.
6. On the action menu line you can press **<Next Page>** to configure rest of ports, press **<Previous Page>** return to previous page.




Per Port Setting interface

## SNMP

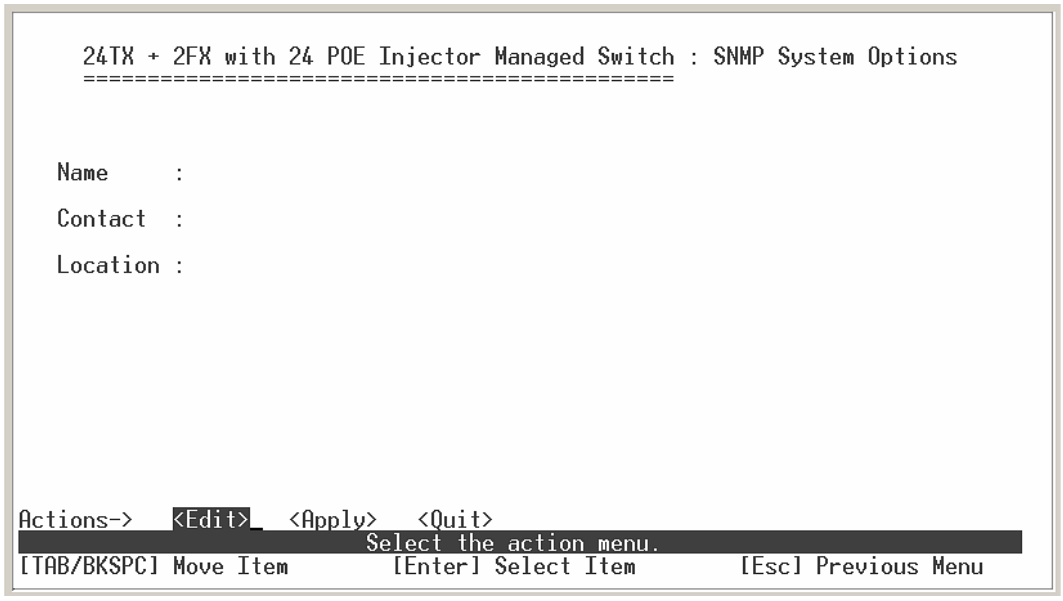
To define management stations as trap managers and to enter SNMP community strings. You can also define a name, location, and contact person for the switch.




SNMP Configuration interface

### SNMP System Options

1. Press **<Edit>**.
2. **Name:** assign a name for the switch.
3. **Contact:** Type the name of contact person or organization.
4. **Location:** Type the location of the switch.
5. Press "**ESC**" goes back action menu line.
6. Press **<Apply>** to apply configuration value.

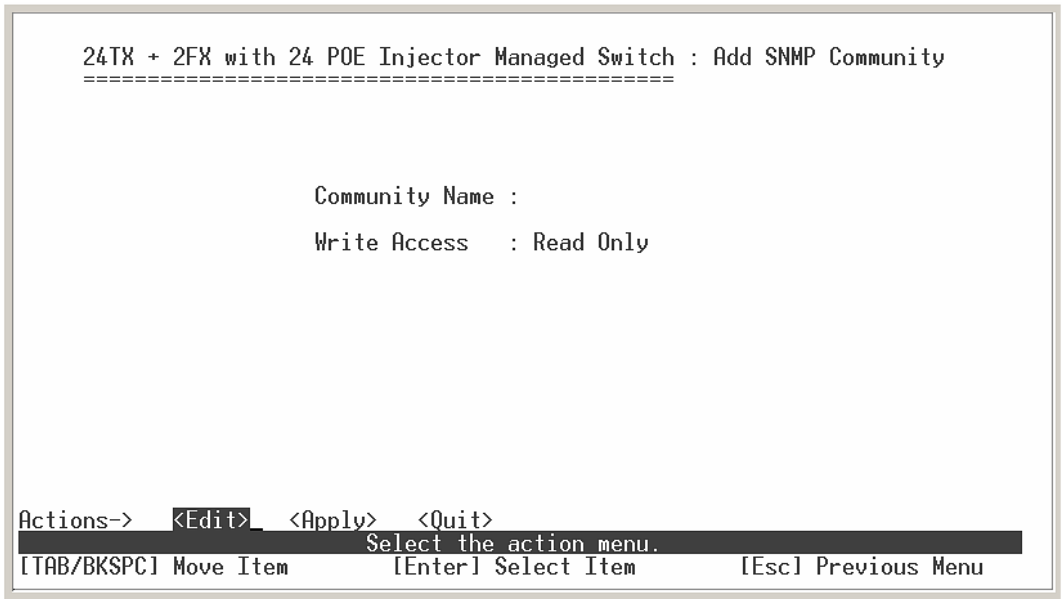

24TX + 2FX with 24 POE Injector Managed Switch : SNMP System Options
Name :
Contact :
Location :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

SNMP System Options interface

### Community Strings

- **Add Community Strings**

1. Select **<Add>** → **<Edit>**.
2. **Community Name:** type the name of community strings.
3. **Write Access:** enable the rights is read only or read/write.
   - **Read only:** Read only, enables requests accompanied by this string to display MIB-object information.
   - **Read/Write:** Read write, enables requests accompanied by this string to display MIB-object information and to set MIB objects.


24TX + 2FX with 24 POE Injector Managed Switch : Add SNMP Community
Community Name :
Write Access : Read Only
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Add Community Strings interface

- **Edit SNMP Community**

1. Select **<Edit>**
2. Choose the item that you want to modify and then press "**Enter**".
3. **Community Name:** type the new name.
4. **Write Access:** Press "**Space**" key to change the right.
5. Select **<Apply>**.

- **Delete SNMP Community string**

1. Select **<Delete>**.
2. Choose the community string that you want to delete and then press "**Enter**".
3. When pressing "**Enter**" will complete deletion.

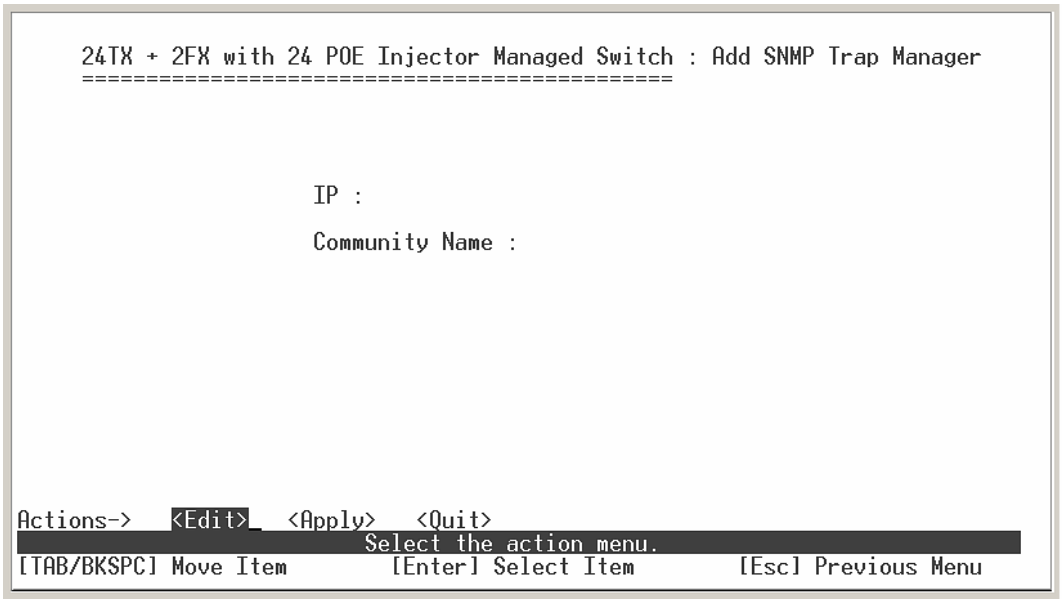
### Trap Managers

A trap manager is a management station that receives traps, the system alerts generated

by the switch. If no trap manager is defined, no traps will issue. Create a trap manager by entering the IP address of the station and a community string.

- **Add the trap manager**

1. Select **<Add>** → **<Edit>** to add the trap manager.
2. **IP:** type the IP address.
3. **Community Name:** type the community name.
4. Press "**ESC**" go back to actions menu line
5. Select **<Apply>** to apply all configure.


24TX + 2FX with 24 POE Injector Managed Switch : Add SNMP Trap Manager
IP :
Community Name :
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

Add Trap Manager interface

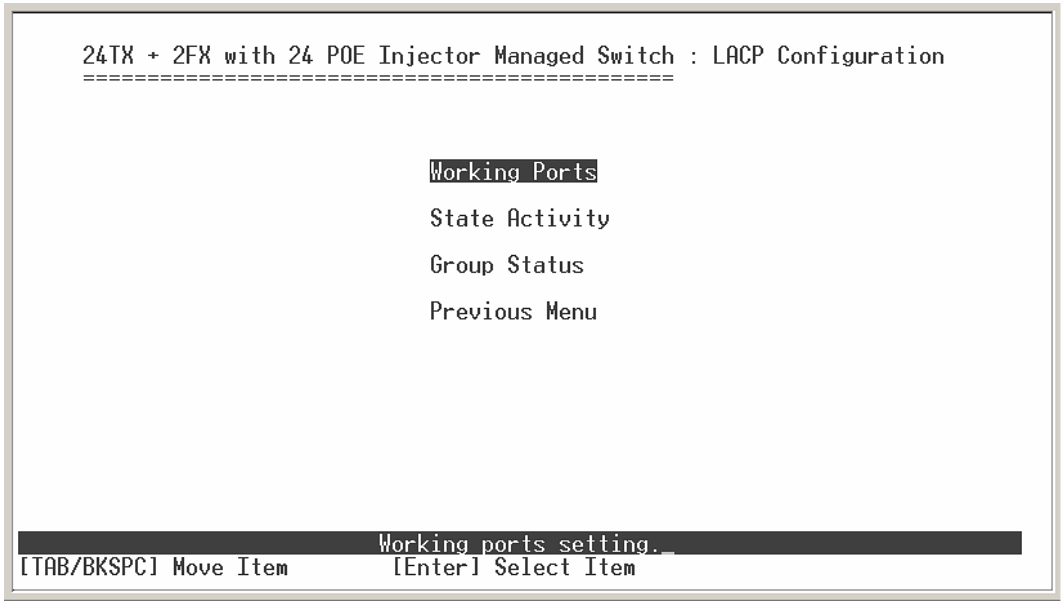
- **Delete Trap Manager**

1. Select **<Delete>**
2. Choose the trap manager that you want to delete and then press "**Enter**".
3. When pressing "**Enter**" will complete deletion.

## LACP

The Link Aggregation Control Protocol (LACP) provides a standardized means for

exchanging information between Partner Systems on a link to allow their Link Aggregation Control instances to reach agreement on the identity of the Link Aggregation Group to which the link belongs, move the link to that Link Aggregation Group, and enable its transmission and reception functions in an orderly manner. Link aggregation lets you group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode,** more detail information refers to IEEE 802.3ad. You can configure and view all the LACP status.

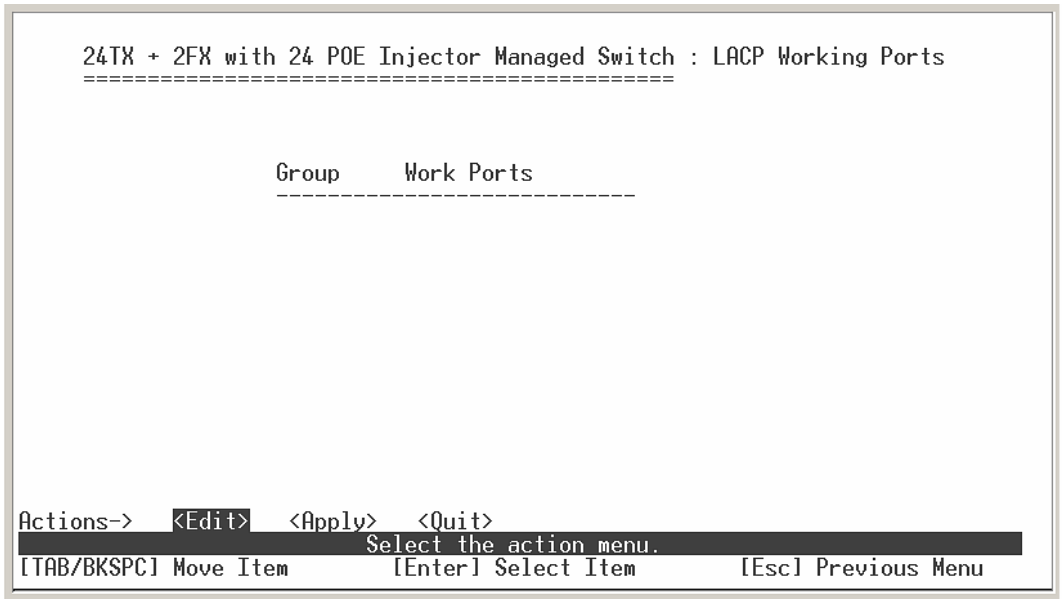



LACP Configuration interface

**Working Ports Setting**

1. Select **<Edit>**
2. **Group:** Display the trunk group ID.
3. **Working Port Num:** The max number of ports can be aggregated at the same time. If LACP static trunk group, the exceed ports is standby and able to aggregate if work ports fail. If it is local static trunk group, the number must be the same as group ports.
4. Select **<Apply>**

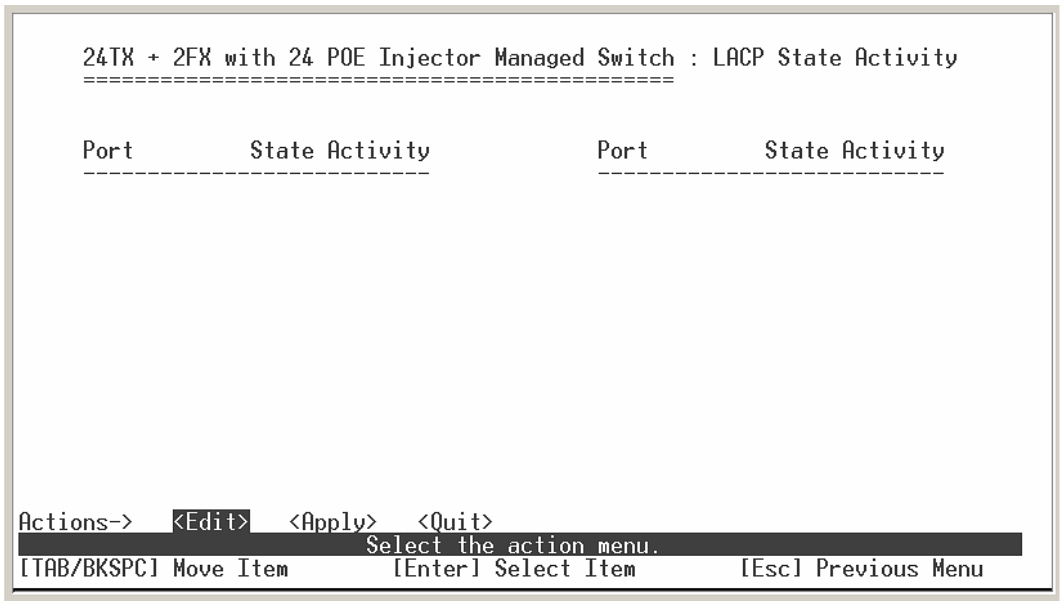
**[Note]** Before set LACP support, you have to set trunk group on the Trunk Configuration.




LACP Working Ports configuration interface

### LACP State Activity

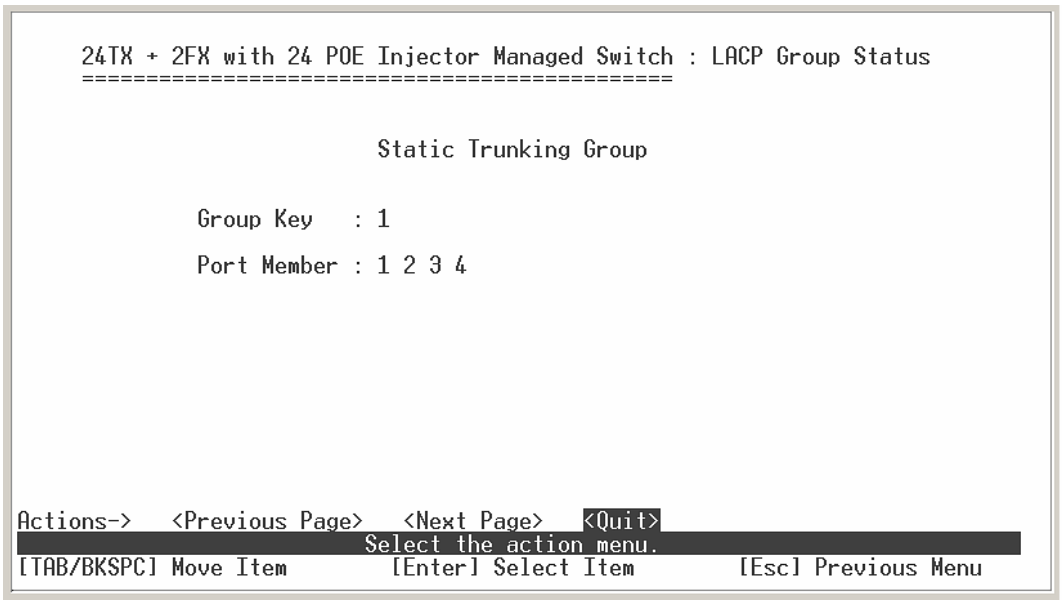
1. Select **<Edit>**
2. Use "**Space**" key to select the Port State Activity.
   - **Active:** The port automatically sends LACP protocol packets.
   - **Passive:** The port does not automatically send LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.
3. Select **<Apply>**.




LACP State Activity configuration interface

## LACP Group Status

When you setting trunk group, you can see the relation information in here.

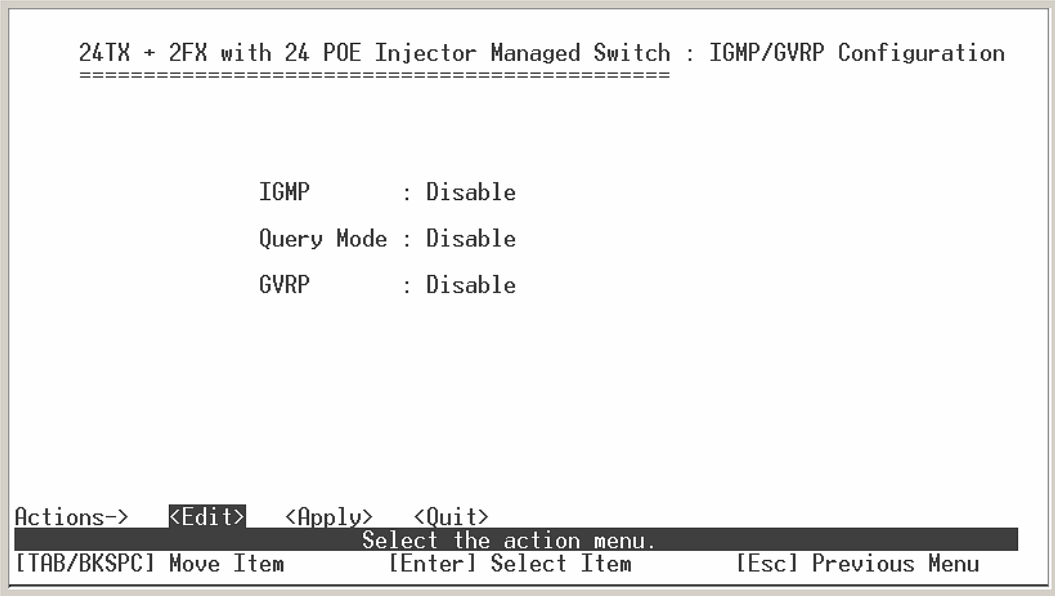



LACP Group State interface

## IGMP/GVRP Configuration

You can enable or disable the IGMP/GVRP (GARP VLAN Registration Protocol).

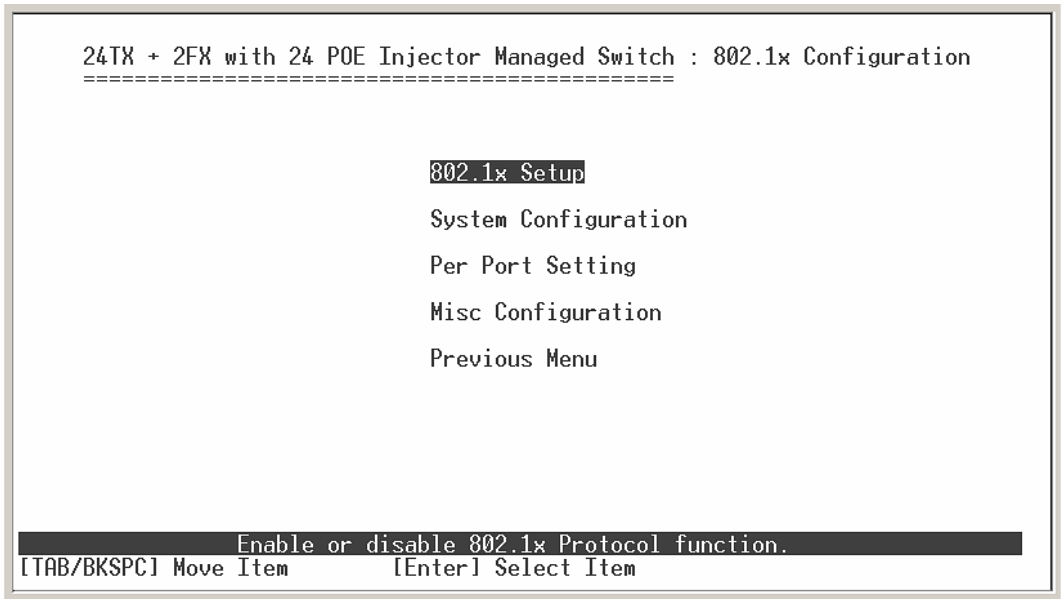
1. Select **<Edit>**
2. Use "**Space**" key to change the value
3. Select **<Apply>**


24TX + 2FX with 24 POE Injector Managed Switch : IGMP/GVRP Configuration
IGMP : Disable
Query Mode : Disable
GVRP : Disable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

IGMP/GVRP Configuration interface

## 802.1x Configuration

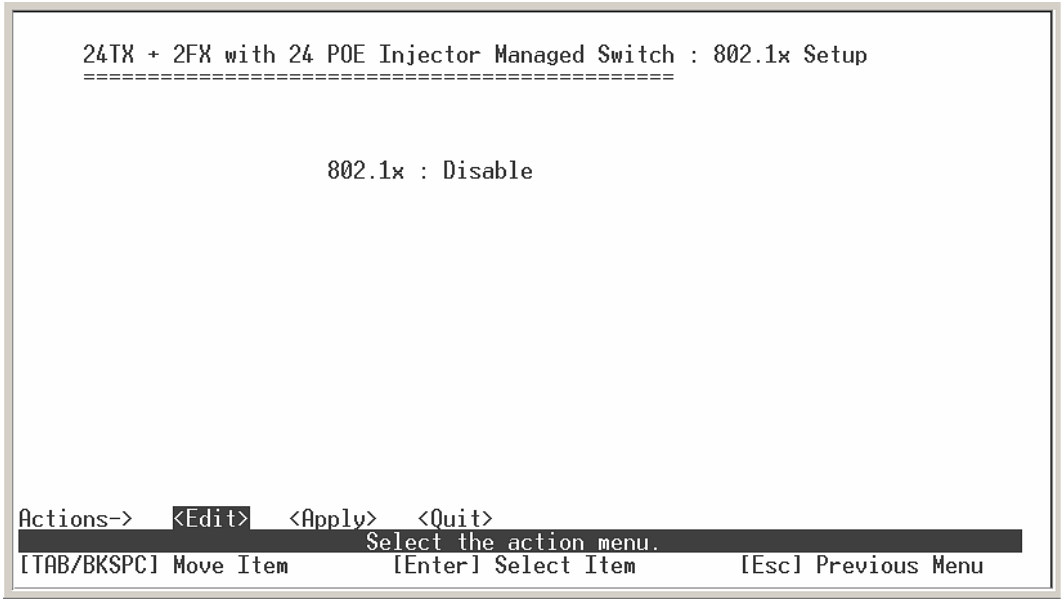
You can configure 802.1x relate settings.




802.1x Configuration interface

### 802.1x Setup

1. Select **<Edit>**
2. Use "**Space**" key to Enable or Disable the 802.1x.
3. Select **<Apply>**

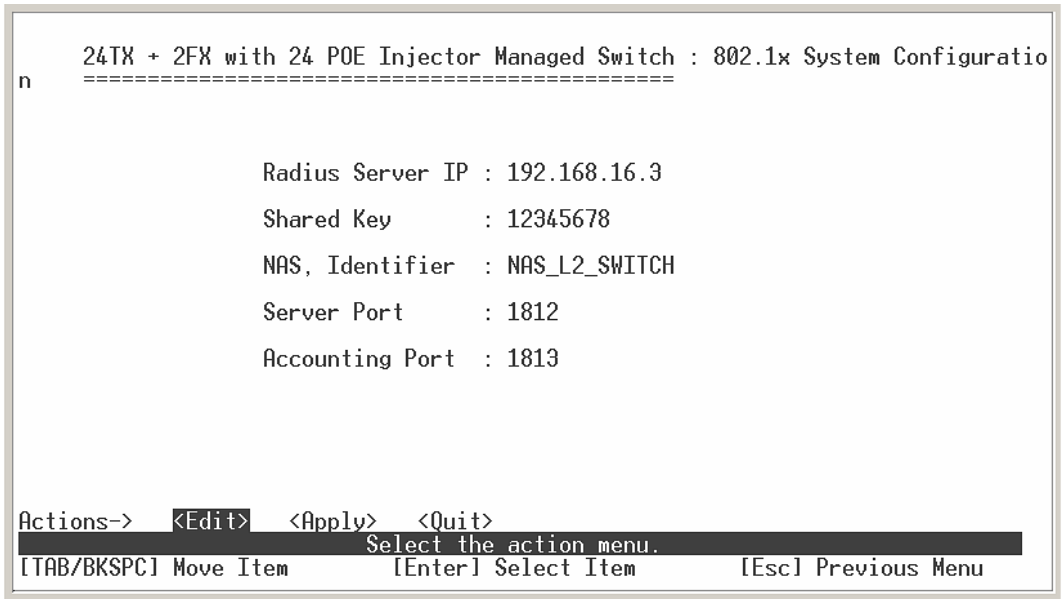

24TX + 2FX with 24 POE Injector Managed Switch : 802.1x Setup
802.1x : Disable
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

802.1x Setup interface

**System Configuration**

After enabling the IEEE 802.1X function, you can configure the parameters of this function.

1. Select **<Edit>**
2. **Radius Server IP:** set the Radius Server IP address.
3. **Shared Key:** set an encryption key for using during authentication sessions with the specified radius server. This key must match the encryption key used on the Radius Server.
4. **NAS, Identifier:** set the identifier for the radius client.
5. **Server Port:** set the UDP destination port for authentication requests to the specified Radius Server.
6. **Accounting Port:** set the UDP destination port for accounting requests to the specified Radius Server.
7. Select **<Apply>**

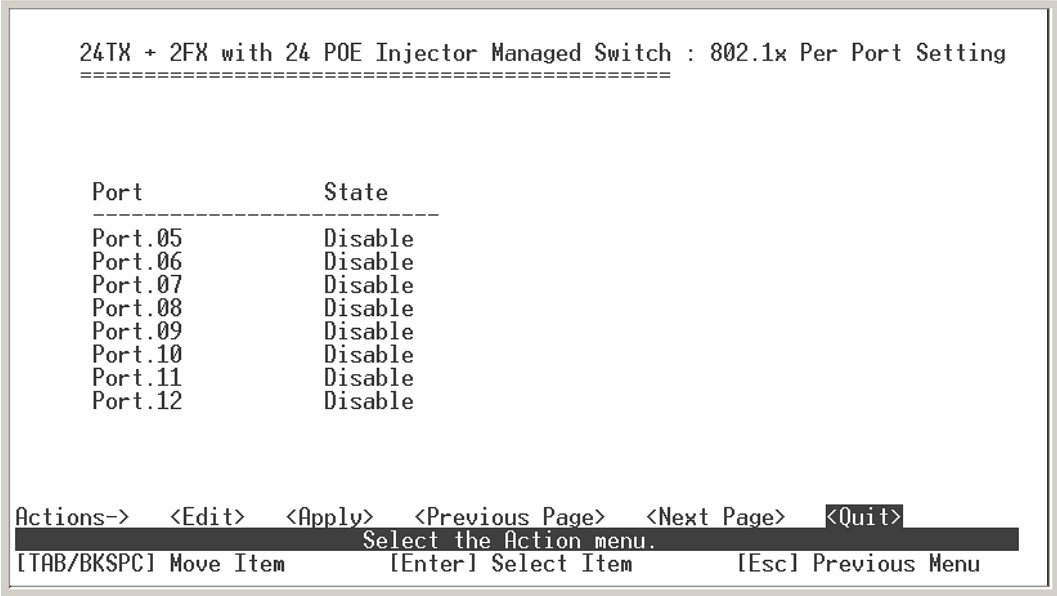

24TX + 2FX with 24 POE Injector Managed Switch : 802.1x System Configuratio
n
Radius Server IP : 192.168.16.3
Shared Key : 12345678
NAS, Identifier : NAS_L2_SWITCH
Server Port : 1812
Accounting Port : 1813
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

802.1x System Configuration interface

### Per Port Setting

The State provides Disable, Accept, Reject and Authorize. Use "**Space**" key change the state value.

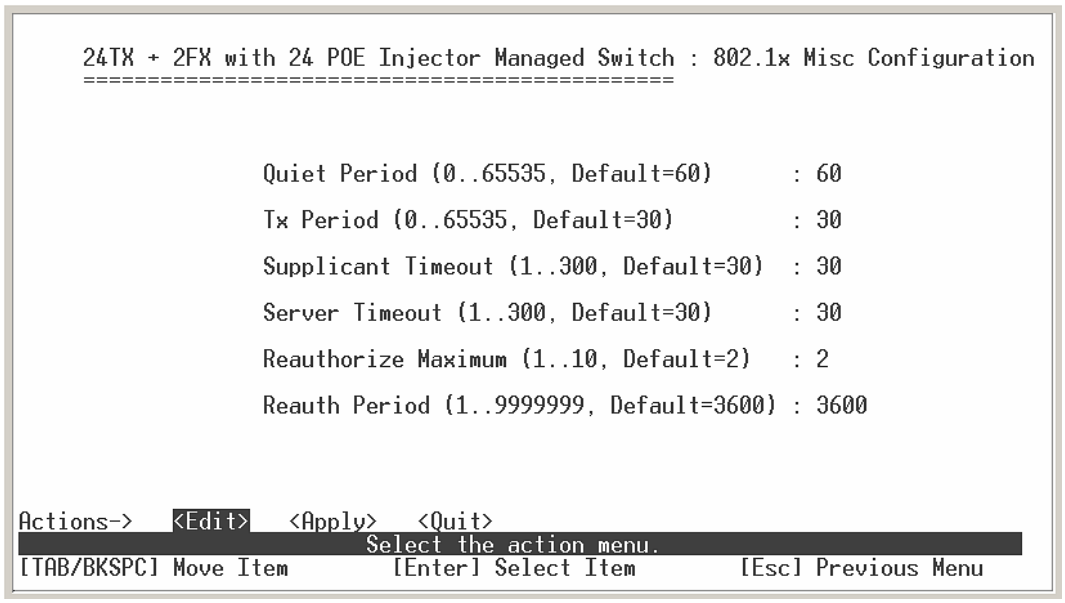
- **Reject:** the specified port is required to be held in the unauthorized state.
- **Accept:** the specified port is required to be held in the Authorized state.
- **Authorized:** the specified port is set to the Authorized or Unauthorized state in accordance with the outcome of an authentication exchange between the Supplicant and the authentication server.
- **Disable:** The specified port is required to be held in the Authorized state.




802.1x Per Port Setting interface

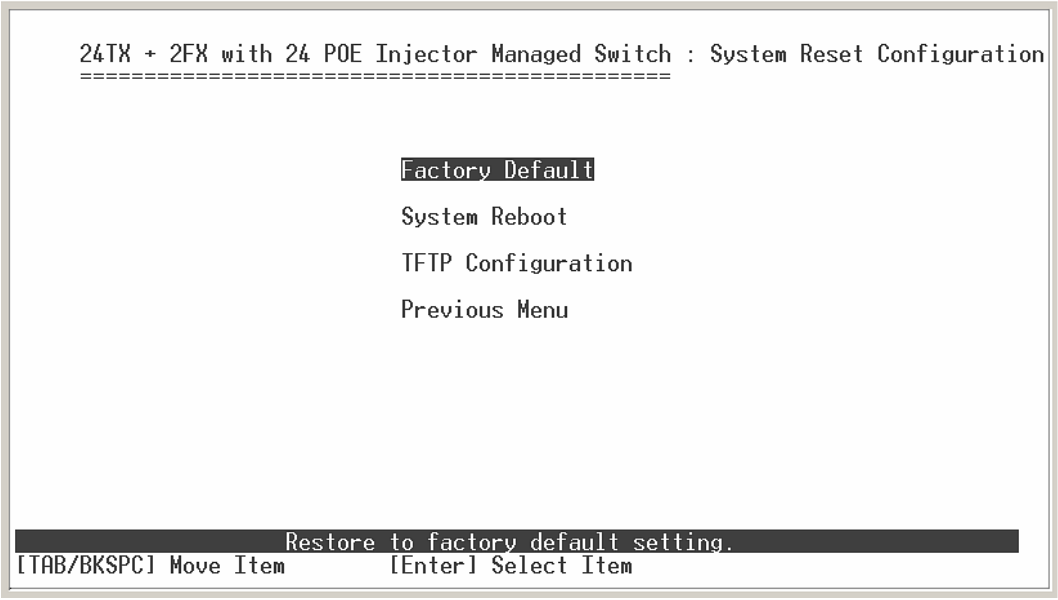
**Misc Configuration**

1. Select **<Edit>**
2. **Quiet period:** set the period during which the port doesn't try to acquire a supplicant.
3. **TX period:** set the period the port wait for retransmit next EAPOL PDU during an authentication session.
4. **Supplicant timeout:** set the period of time the switch wait for a supplicant response to an EAP request.
5. **Server timeout:** set the period of time the switch wait for a server response to an authentication request.
6. **Reauthorize Maximum:** set the number of authentication that must time-out before authentication fails and the authentication session ends.
7. **Reauthorize period:** set the period of time after which clients connected must be re-authenticated.
8. Select **<Apply>**


24TX + 2FX with 24 POE Injector Managed Switch : 802.1x Misc Configuration
Quiet Period (0..65535, Default=60) : 60
Tx Period (0..65535, Default=30) : 30
Supplicant Timeout (1..300, Default=30) : 30
Server Timeout (1..300, Default=30) : 30
Reauthorize Maximum (1..10, Default=2) : 2
Reauth Period (1..9999999, Default=3600) : 3600
Actions-> <Edit> <Apply> <Quit>
Select the action menu.
[TAB/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

802.1x Misc Configuration interface

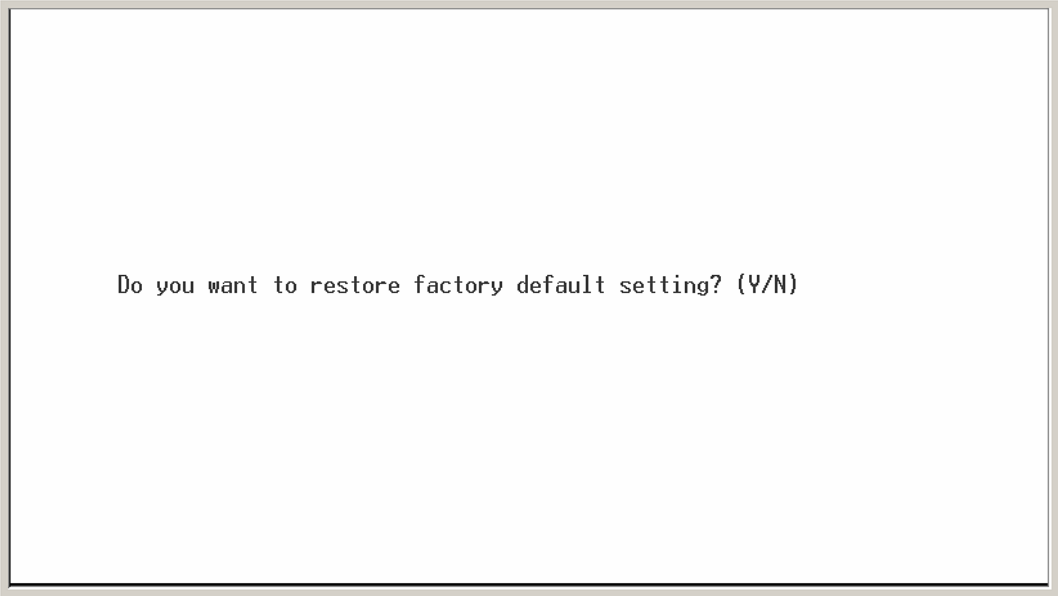
## System Reset Configuration


24TX + 2FX with 24 POE Injector Managed Switch : System Reset Configuration
Factory Default
System Reboot
TFTP Configuration
Previous Menu
Restore to factory default setting.
[TAB/BKSPC] Move Item
[Enter] Select Item

System Reset Configuration interface

### Factory Default

Reset switch to default configuration. Press "**Y**", switch will load default setting. After finished load default setting, switch will reboot automatically.



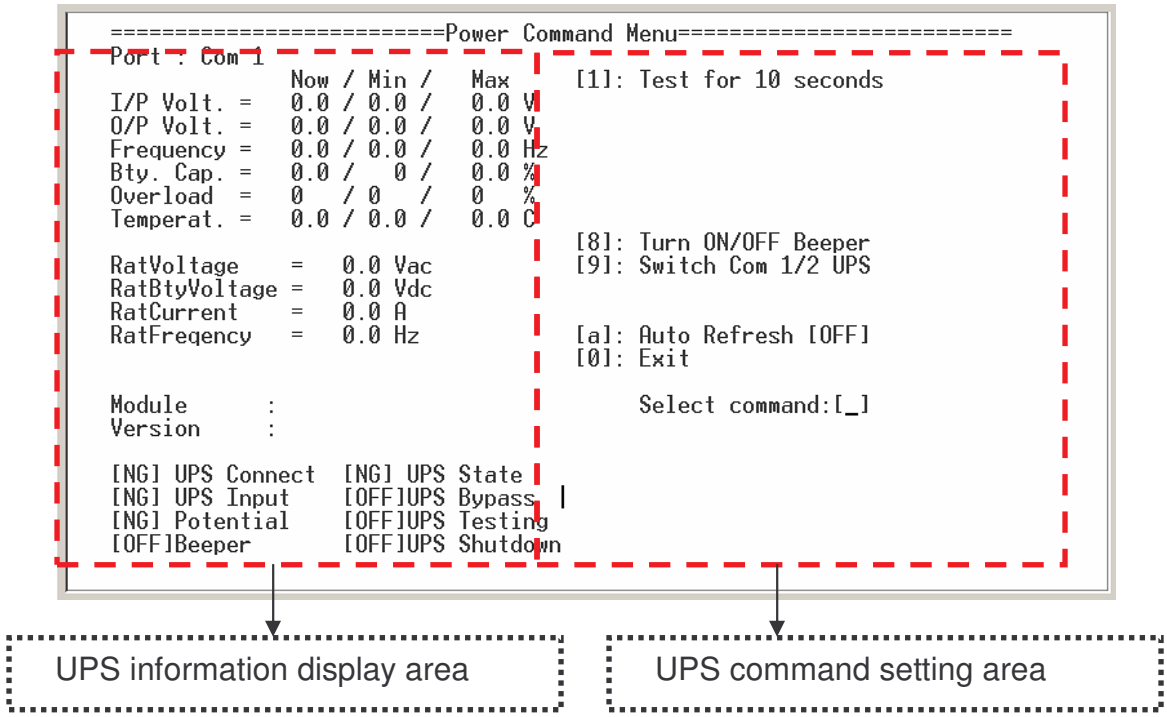

Factory Default interface

### System Reboot

Reboot the switch in software reset. All configuration will not change.

## Power Menu

You can view connected UPS information and set command to UPS.


==========Power Command Menu==========
Port : Com 1
Now / Min / Max
I/P Volt. = 0.0 / 0.0 / 0.0 V
O/P Volt. = 0.0 / 0.0 / 0.0 V
Frequency = 0.0 / 0.0 / 0.0 Hz
Bty. Cap. = 0.0 / 0 / 0.0 %
Overload = 0 / 0 / 0 %
Temperat. = 0.0 / 0.0 / 0.0 C
RatVoltage = 0.0 Vac
RatBtyVoltage = 0.0 Vdc
RatCurrent = 0.0 A
RatFreqency = 0.0 Hz
Module :
Version :
[NG] UPS Connect
[NG] UPS State
[NG] UPS Input
[OFF]UPS Bypass
[NG] Potential
[OFF]UPS Testing
[OFF]Beeper
[OFF]UPS Shutdown
[1]: Test for 10 seconds
[8]: Turn ON/OFF Beeper
[9]: Switch Com 1/2 UPS
[a]: Auto Refresh [OFF]
[0]: Exit
Select command:[_]
UPS information display area
UPS command setting area

**UPS information display**

- **I/P Volt.:** display the current value, minimum, and maximum value of UPS input voltage.
- **O/P Volt.:** display the current value, minimum, and maximum value of UPS output voltage.
- **Frequency:** display the frequency value of UPS.
- **Bty. Cap.:** display the battery capacity of UPS.
- **Overload:** display the overload capacity of UPS.
- **Temperat.**: display the current temperature of UPS.

⊙ **UPS commands**

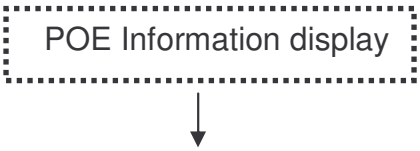
| Command | Description |
|---|---|
| **[1] Test for 10 seconds** | UPS will perform the self test for 10 seconds |

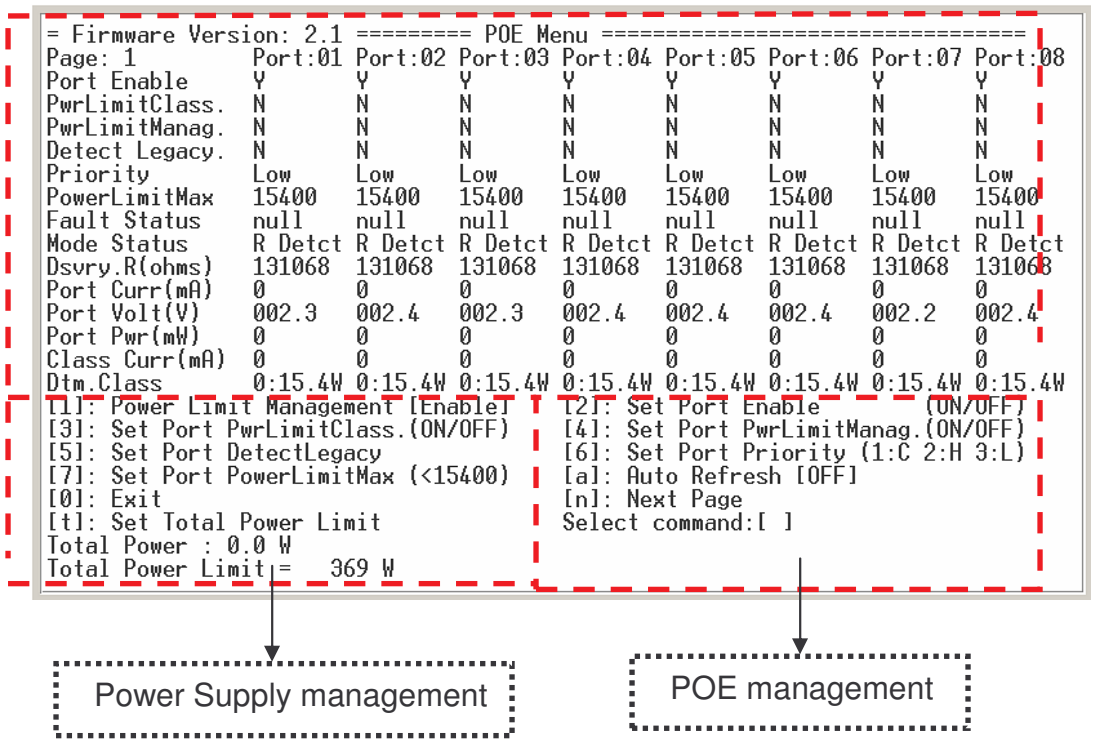
| | |
|---|---|
| **[8] Turn ON/OFF Beeper** | Turn on the UPS beeper or turn off the UPS beeper |
| **[9] Switch Com 1/2 UPS** | Switch to com1 or com 2 connected UPS |
| **[a] Auto Refresh** | Enabling the screen auto refresh |
| **[0] Exit** | Exit the UPS menu mode |

- **Select command:** enter the power command number in this prompt and press enter.

## POE Menu

You can view POE port information and set command to POE port.




= Firmware Version: 2.1 ========= POE Menu ==========
Page: 1 Port:01 Port:02 Port:03 Port:04 Port:05 Port:06 Port:07 Port:08
Port Enable Y Y Y Y Y Y Y Y
PwrLimitClass. N N N N N N N N
PwrLimitManag. N N N N N N N N
Detect Legacy. N N N N N N N N
Priority Low Low Low Low Low Low Low Low
PowerLimitMax 15400 15400 15400 15400 15400 15400 15400 15400
Fault Status null null null null null null null null
Mode Status R Detct R Detct R Detct R Detct R Detct R Detct R Detct R Detct
Dsvry.R(ohms) 131068 131068 131068 131068 131068 131068 131068 131068
Port Curr(mA) 0 0 0 0 0 0 0 0
Port Volt(V) 002.3 002.4 002.3 002.4 002.4 002.4 002.2 002.4
Port Pwr(mW) 0 0 0 0 0 0 0 0
Class Curr(mA) 0 0 0 0 0 0 0 0
Dtm.Class 0:15.4W 0:15.4W 0:15.4W 0:15.4W 0:15.4W 0:15.4W 0:15.4W 0:15.4W
[1]: Power Limit Management [Enable]
[2]: Set Port Enable (ON/OFF)
[3]: Set Port PwrLimitClass.(ON/OFF)
[4]: Set Port PwrLimitManag.(ON/OFF)
[5]: Set Port DetectLegacy
[6]: Set Port Priority (1:C 2:H 3:L)
[7]: Set Port PowerLimitMax (<15400)
[a]: Auto Refresh [OFF]
[0]: Exit
[n]: Next Page
[t]: Set Total Power Limit
Select command:[ ]
Total Power : 0.0 W
Total Power Limit:= 369 W
Power Supply management
POE management

- **Port Enable:** displays the POE port status. **Y** means the port is enabling. **N** means the port is disabling and will not have any power providing but the port still can transmit the data packet.
- **PwrLimitClass.:** displays the power class limit status. **N** means the power class limit is disabling. **Y** means the power class limit is enabling. The power limit class will follow the value that set in the power limit max when is enabling.
- **PwrLimitManag.:** displays the POE management that will follow or will not following the **priority** rules.
- **Detect Legacy:** The legacy detection is to identify the PD devices with unique electrical signatures, that did not follow the IEEE 802.3af standard.
- **Priority:** the port priority for power supply's priority. 1 = C (critical), 2 = H (High), 3 = L (Low).
- **PowerLimitMax:** per port power output to PD's power limit.
- **Fault Status:** display the PD error status message. There are three error status and explain as following.
  - **Null:** It means there is no PD connected or the connected PD device status is normal.

- **Overload:** It means the current is over the PD current classification limited (475mA @ 48V DC) that the situation happens over 50msec.

- **Mode Status:** display the PD current operation mode status.
  - **V sample or I sample:** It means " Current sample or Voltage sample". When PD is detected and current is supplied, the POE switch will keep detecting and sampling some current or voltage to ensure whether the PD still present on this port. It is an IEEE 802.3af operating procedure.
  - **R detect:** When the port doesn't connect with any PD, the POE switch will poll each port and detects the resistor.
- **Dsvry R (ohms):** display resistance value.
- **Port Curr (mA):** display current value.
- **Port Volt (V):** display voltage value.
- **Port Pwr (W):** display watt value.
- **Class Curr(mA):** display power class. When you enable the "Bypass classification" function, the class value will not show in here.
- **Firmware Version:** display the system firmware version.
- **Total Port Power (W):** total of all the port power that provided to PD.
- **Power Management:** status of the power management function.
- **Total Power Limit:** total power of the total ports' output power.

**Commands**

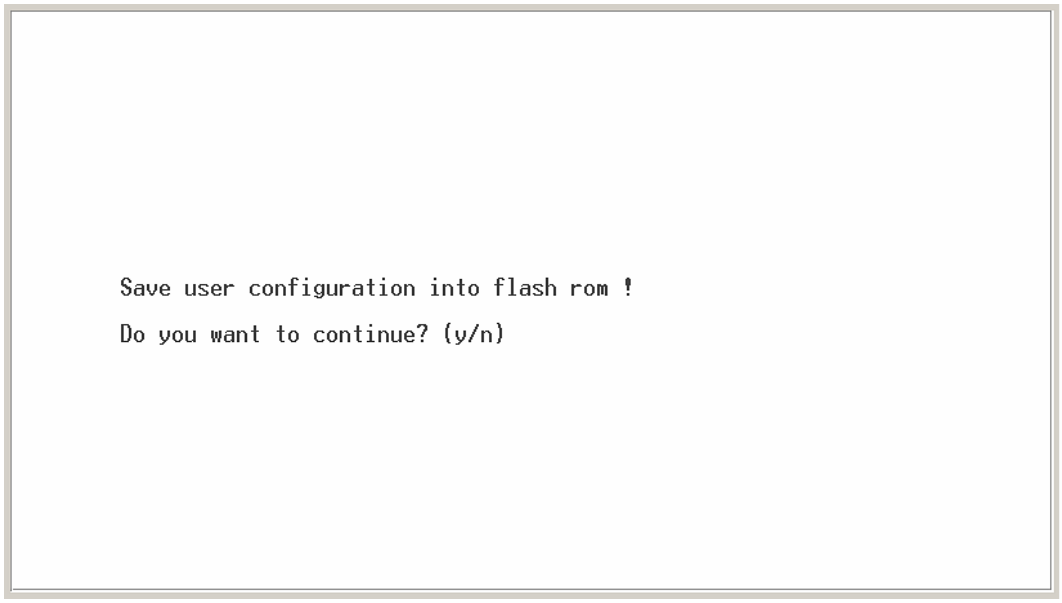
- **Select command:** enter the POE command number or Power supply management command integer in the prompt and press enter. The Power supply management command will show up when the **Port PwrLimit Mangag.** is enabling.

| Command | Description |
|---|---|
| **[1] Power Management (Enable)** | Enabling or disabling the POE power management function. |
| **[2] Set Port Enable (ON/OFF)** | Enabling or disabling the port POE inject function |

| | |
|---|---|
| **[3]. Set Port PwrLimitClass. (ON/OFF)** | Enabling or disabling per port power output limit. When is enabling, per port power output limit will follow the value that set in power limit max. |
| **[4] Set Port PwrLimitManag. (ON/OFF)** | Enabling or disabling the port power limit management for power supply management. |
| **[5] Set Port DetectLegacy** | Enabling the port power legacy detect. |
| **[6] Set Port Priority (1:C 2:H 3:L)** | Set port priority for the power supply management. |
| **[7] Set Power Limit Max (<15400)** | Set the port power output limit value. The maximum value must less than 15400. |
| **[a] Auto Refresh [OFF]** | Enabling or disabling auto refresh system parameters. |
| **[t] Set Total Power Limit** | Set the total port power limit. When the Power Management is enabling, this function will show up. |
| **[n] Next Page** | Switch to next page |
| **[0] Exit** | Exit POE Menu mode |

## Save Configuration

You must save the configuration to the flash memory when you have changed the configuration. Otherwise, the new configuration will be lost when the switch restart or power off.




Save Configuration Interface

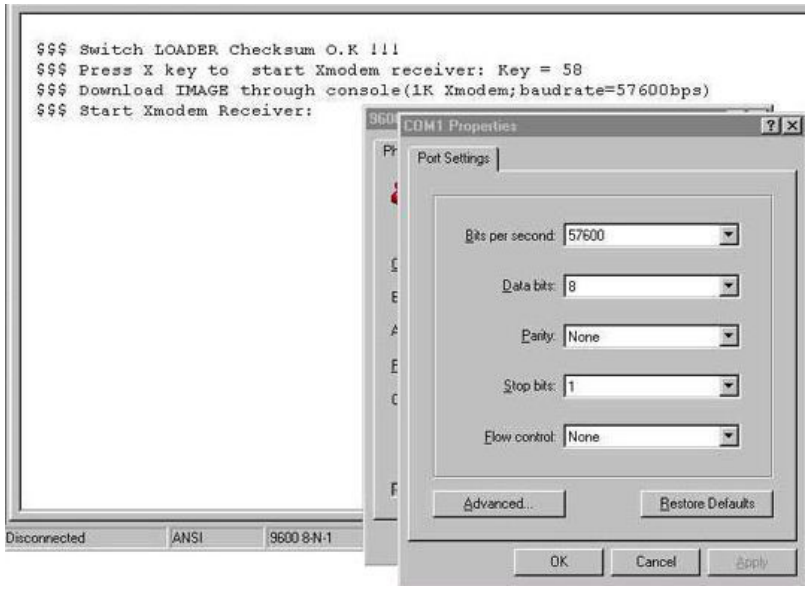
## Xmodem Upgrade

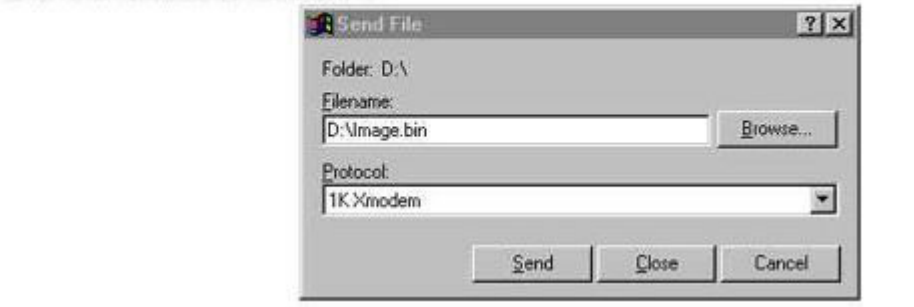
Before using Xmodem upgrade, disconnect terminal and modify baud rate to 57600bps, then connect again.

1. Press “**X**” key to start upgrading from Xmodem.
2. You will see the following screen displays.

```
$$$ Switch LOADER Checksum O.K !!!
$$$ Press X key to  start Xmodem receiver:
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver:
```

3. Select “**send file**" under **Transfer** menu from menu bar.
4. Select "**browse**" button to select the path.
5. Select "**1K Xmodem**" of protocol and click "**Send**" button.




6. After successfully upgraded the new firmware, please modify baud rate to 9600bps.

# Web-Based Management

The Web-Based Management offers advanced management features and allow users to manage the switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer.

The Web-Based Management supports Internet Explorer 5.0. It is based on Java Applets with an aim to reduce network bandwidth consumption, enhance access speed and present an easy viewing screen.

**[Note]** By default, IE5.0 or later version does not allow Java Applets to open sockets. The user has to explicitly modify the browser setting to enable Java Applets to use network ports.

## Preparing for Web Management

Before to use web management, you can use console to login the Switch checking the default IP of the Switch. Please refer to **Console Management** Chapter for console login. If you need change IP address in first time, you can use console mode to modify it. The default value is as below:

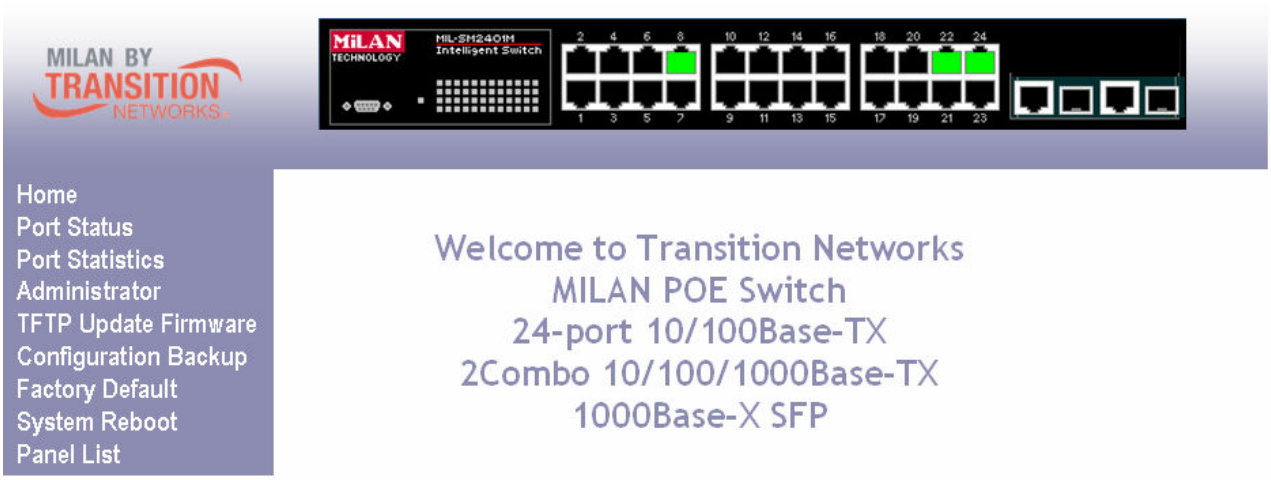
IP Address: **192.168.16.1**
Subnet Mask: **255.255.255.0**
Default Gateway: **192.168.16.254**
User Name: **root**
Password: **root**

## Online Help

You can click Help button when you have any configuration question during the configuration.

## System Login

1. Launch the Internet Explorer.
2. Type “http://” and the IP address of the 8 10/100TX plus 100FX Exp. Slot managed POE switch. Press “**Enter**”.
3. The login screen appears.
4. Key in the user name and password. The default user name and password is “ **root** ”.
5. Click “**Enter**” or ”**OK**”, then the home screen of the Web-based management appears.




24 10/100TX plus 100FX Exp. Slot managed POE switch Web Management Interface

## Port status

In Port status, you can view every port status that depended on user setting and the negotiation result.

1. **Link:** Down is “No Link”. UP is “Link”.
2. **State:** display port statuses “disable” or “enable”. “Unlink” will be treated as “off ”.
3. **Negotiation:** display the auto negotiation mode: auto/force/Nway-force. “Config” means the value that user configured. “Actual” means the current value of the port.
4. **Speed Duplex:** display port connection speed. “Config” means the value that user

configured. “Actual” means the current value of the port.

5. **Flow Control:** Full: display the flow control status is “enable” or “disable” in full mode. “Config” means the value that user configured. “Actual” means the current value of the port.
6. **Back Pressure:** Display the Back Pressure status setting. “Config” means the value that user configured. “Actual” means the current value of the port.
7. **Bandwidth:** display the in and out bandwidth of each port.
8. **Priority:** display the port static priority status is “High” or “Low” or “Disable”.
9. **Security:** display the port security is “enable” or “disable”.

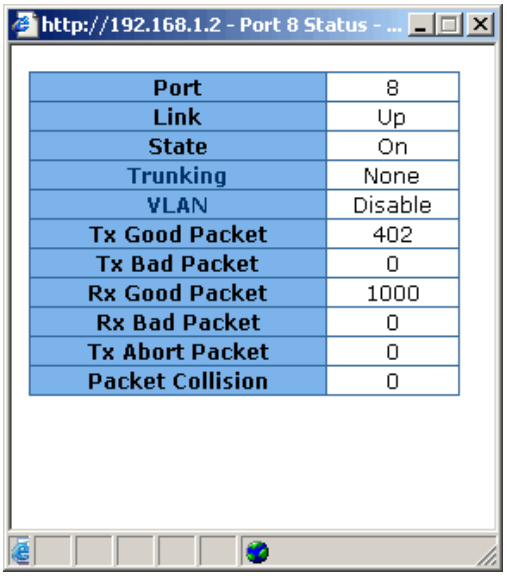
**Port Status**

| Port | Type | Link | State | Negotiation | | Speed Duplex | | Flow Control | | Back Pressure | | Band Width | | Priority | Security |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Config | Actual | Config | Actual | Config | Actual | Config | Actual | In | Out | | |
| Port.01 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.02 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.03 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.04 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.05 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.06 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.07 | 100TX | Up | Enable | Auto | Auto | 100 Full | 100 Full | ON | ON | ON | OFF | OFF | OFF | Disable | OFF |
| Port.08 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.09 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.10 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.11 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.12 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.13 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.14 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.15 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.16 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.17 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.18 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.19 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.20 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.21 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.22 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.23 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.24 | 100TX | Down | Enable | Auto | N/A | 100 Full | N/A | ON | N/A | ON | N/A | OFF | OFF | Disable | OFF |
| Port.25 | Auto | Up | Enable | Force | Auto | 1G Full | 1G Full | ON | ON | ON | OFF | OFF | OFF | Disable | OFF |
| Port.26 | Auto | Up | Enable | Force | Auto | 1G Full | 1G Full | ON | ON | ON | OFF | OFF | OFF | Disable | OFF |

Port Status interface

## View the Port Information

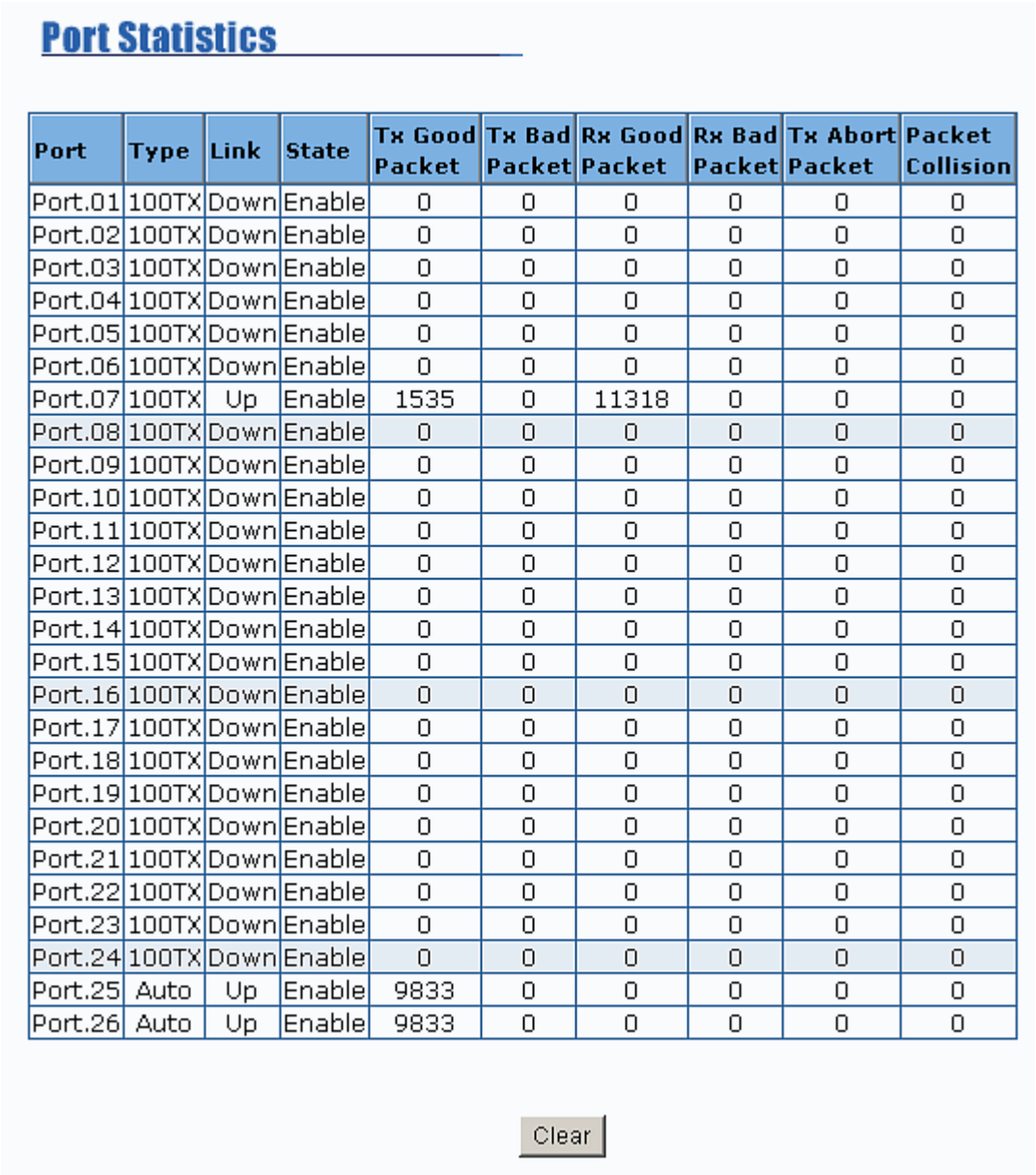
You can direct click the port on the Switch figure on the top of web page. Then, you will see the port information.




Port information interface

## Port Statistics

The following information provides a view of the current port statistic information. Scroll down for more ports statistics. Click Clear button to clean all counts.


Port Statistics
Port Type Link State Tx Good Packet Tx Bad Packet Rx Good Packet Rx Bad Packet Tx Abort Packet Packet Collision
Port.01 100TX Down Enable 0 0 0 0 0 0
Port.02 100TX Down Enable 0 0 0 0 0 0
Port.03 100TX Down Enable 0 0 0 0 0 0
Port.04 100TX Down Enable 0 0 0 0 0 0
Port.05 100TX Down Enable 0 0 0 0 0 0
Port.06 100TX Down Enable 0 0 0 0 0 0
Port.07 100TX Up Enable 1535 0 11318 0 0 0
Port.08 100TX Down Enable 0 0 0 0 0 0
Port.09 100TX Down Enable 0 0 0 0 0 0
Port.10 100TX Down Enable 0 0 0 0 0 0
Port.11 100TX Down Enable 0 0 0 0 0 0
Port.12 100TX Down Enable 0 0 0 0 0 0
Port.13 100TX Down Enable 0 0 0 0 0 0
Port.14 100TX Down Enable 0 0 0 0 0 0
Port.15 100TX Down Enable 0 0 0 0 0 0
Port.16 100TX Down Enable 0 0 0 0 0 0
Port.17 100TX Down Enable 0 0 0 0 0 0
Port.18 100TX Down Enable 0 0 0 0 0 0
Port.19 100TX Down Enable 0 0 0 0 0 0
Port.20 100TX Down Enable 0 0 0 0 0 0
Port.21 100TX Down Enable 0 0 0 0 0 0
Port.22 100TX Down Enable 0 0 0 0 0 0
Port.23 100TX Down Enable 0 0 0 0 0 0
Port.24 100TX Down Enable 0 0 0 0 0 0
Port.25 Auto Up Enable 9833 0 0 0 0 0
Port.26 Auto Up Enable 9833 0 0 0 0 0
Clear

Port Statistics interface

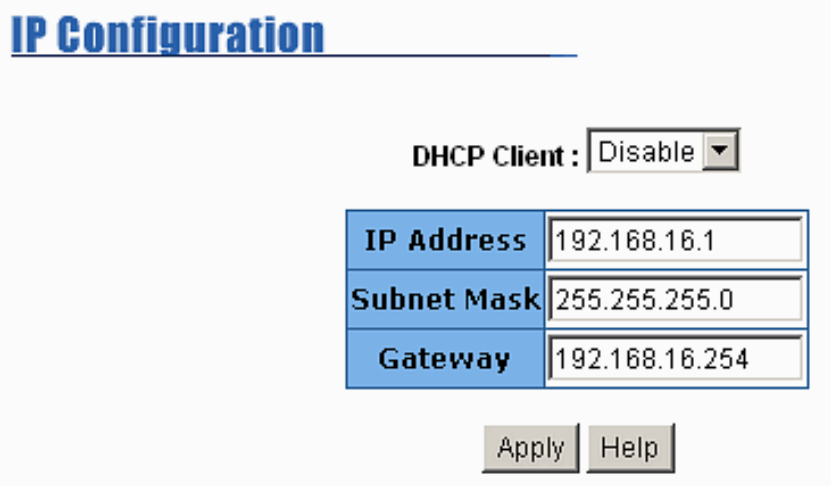
## Administrator

In Administrator function, it provides the following functions -- **IP Configuration, Switch Settings, Console Port Information, Port Controls, Trunking, Forwarding and Filtering, VLAN Configuration, Spanning Tree, Port Mirroring, SNMP Management, Security Manager, and 802.1x Configuration**.

## IP Address

User can configure the IP Settings and DHCP client function, than clicks Apply button. After reset the IP address, you must reboot the switch.

1. **DHCP Client:** "**Enable**" is to get IP from DHCP server. "**Disable**" is opposite. The DHCP client function only works if you haven't assigned a static IP address that different than the switch default IP. Once the default IP has been changed the DHCP will not effective and the switch will continue using the manually entered static IP. If you have changed the switch to a static IP address, you can set the IP address back to its default IP address or you can reset the switch back to factory default. And then you can enable the DHCP client function to work.
2. **IP Address:** assign the switch IP address. The default IP is 192.168.16.1.
3. **Subnet Mask:** assign the switch IP subnet mask.
4. **Gateway:** assign the switch gateway. The default value is 192.168.16.254.




IP configuration interface

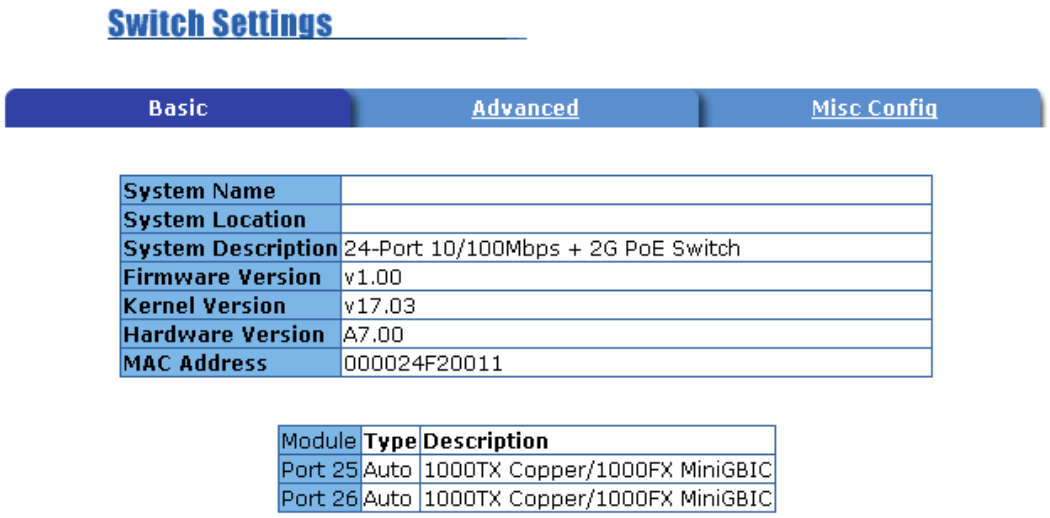
## Switch Setting

In Switch setting, it has three parts of setting – Basic, Advance, and Misc Config. We will describe the configure detail in following.

## Basic

In Basic switch setting, it displays the switch basic information.

- **System Name:** the name of switch.
- **System Location:** the switch physical location.
- **System Description:** the description of switch.
- **Firmware Version:** the switch's firmware version.
- **Kernel Version:** the kernel software version.
- **Hardware version:** the switch hardware version.
- **MAC Address:** the unique hardware address assigned by manufacturer (default)
- **Module:** the module information, if the switch doesn't install the module, then this column will be no any information.




Switch basic setting interface

## Advanced

In Advanced setting, it has two sections – MAC Table Address Entry and Priority Queue Service. After the configuration, click Apply button to complete the configuration.

⊙ **MAC Address Table Entry**

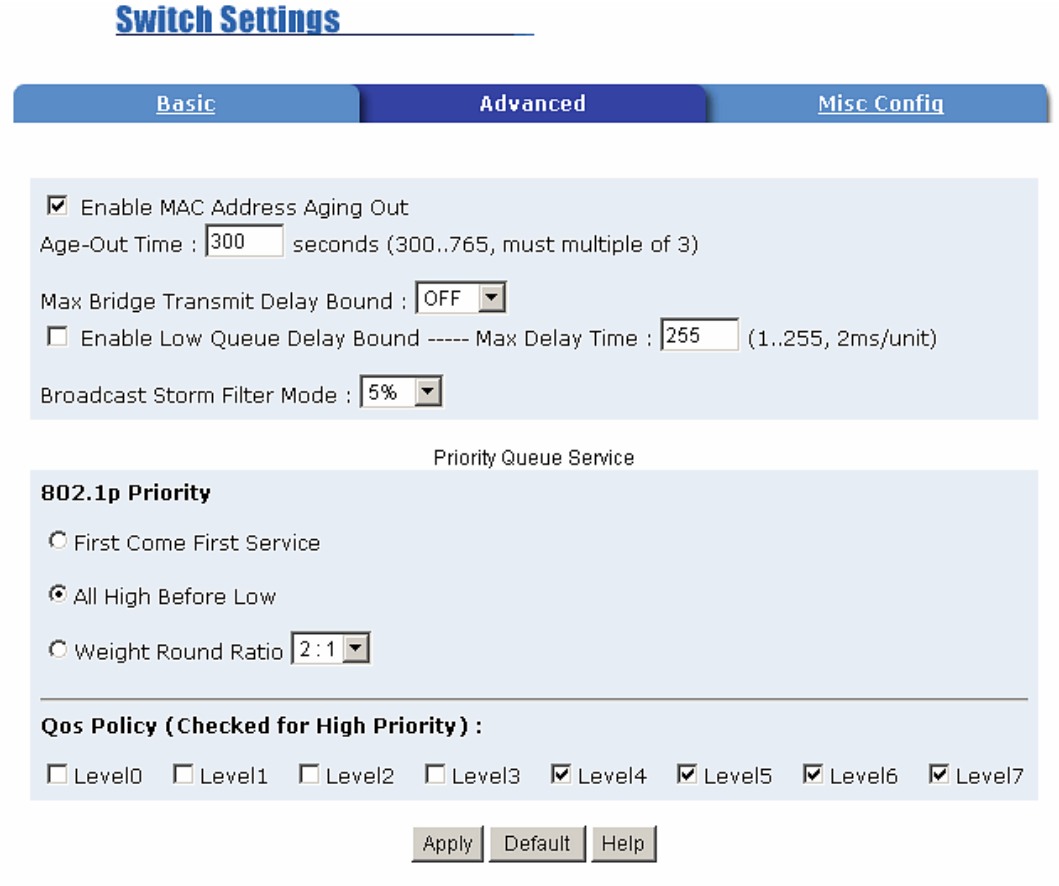
- **Age-out Time:** fill in the number of seconds that an inactive MAC address remains in the switch's address table. The valid range is 300~765 seconds. Default is 300 seconds.
- **Max Bridge Transmit Delay Bound Control:** limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. This valid value are 1sec, 2 sec, 4 sec and off.
- **Enable Low Queue Delay Bound:** limit the low priority packets queuing time in switch. If the low priority packet stays in switch exceed Max Delay Time, it will be sent. The valid range is 1~255 ms.

---

**[Note]** Make sure of “Max bridge transit delay bound control” is enabled before enable Delay Bound, because Enable Delay Bound must be work under “Max bridge transit delay bound control is enabled” situation.

---

- **Broadcast Storm Filter Mode:** configure broadcast storm control. Enable it and set the upper threshold for individual ports. The threshold is the percentage of the port's total bandwidth used by broadcast traffic. When broadcast traffic for a port rises above the threshold you set, broadcast storm control becomes active. The valid threshold value are 5%, 10%, 15%, 20%, 25% and off.

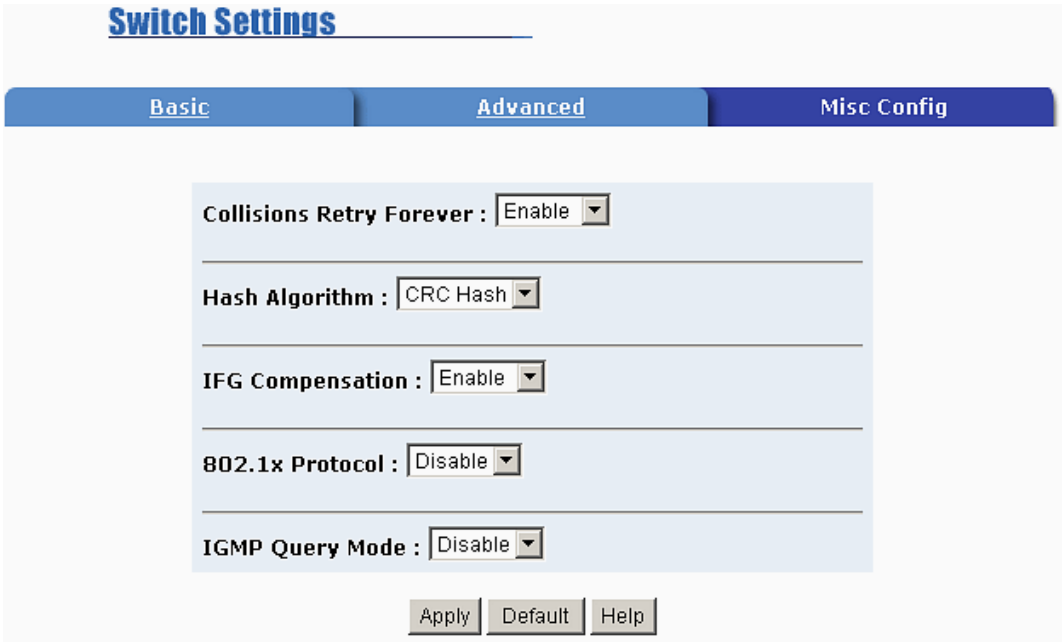

Switch Settings
Basic
Advanced
Misc Config
Enable MAC Address Aging Out
Age-Out Time : 300 seconds (300..765, must multiple of 3)
Max Bridge Transmit Delay Bound : OFF
Enable Low Queue Delay Bound ----- Max Delay Time : 255 (1..255, 2ms/unit)
Broadcast Storm Filter Mode : 5%
Priority Queue Service
802.1p Priority
First Come First Service
All High Before Low
Weight Round Ratio 2 : 1
Qos Policy (Checked for High Priority) :
Level0 Level1 Level2 Level3 Level4 Level5 Level6 Level7
Apply Default Help

Switch Advanced setting interface

- **Priority Queue Service settings:** select the priority queue service type.
  - **First Come First Service:** the sequence of packets sent is depend on arrive order.
  - **All High before Low:** the high priority packets sent before low priority packets.
  - **Weighted Round Ratio:** select the preference given to packets in the switch's high-priority queue. These options represent the number of high priority packets sent before one low priority packet is sent. For example, 5 High: 1 Low means that the switch sends 5 high priority packets before sending 1 low priority packet.
  - **Qos Policy (checked for High Priority):** 0~7 priority level can map to high or low queue.

## Misc Configuration

- **Collisions Retry Forever:** disable is in half duplex. If happen collision will retry 48 times and then drop frame. Enable is in half duplex. If happen collision will retry forever.
- **Hash Algorithm:** CRC Hash or Direct Map for MAC address learning algorithm
- **IFG Compensation:** Internal Packet Gap time compensation configure. Select to “Enable” or “Disable”.
- **802.1x Protocol:** enable or disable 802.1x protocol.
- **IGMP Query Mode:** recognizes different queries from clients or servers to decide which Query will be the first priority. The modes are:
  a. **Auto Mode:** chooses the switch that has the smallest IP address to be set for the IGMP Query mode.
  b. **Enable Mode:** enables the switch to be the IGMP Querier.
  c. **Disable Mode:** disables all other switches from being the IGMP Querier.



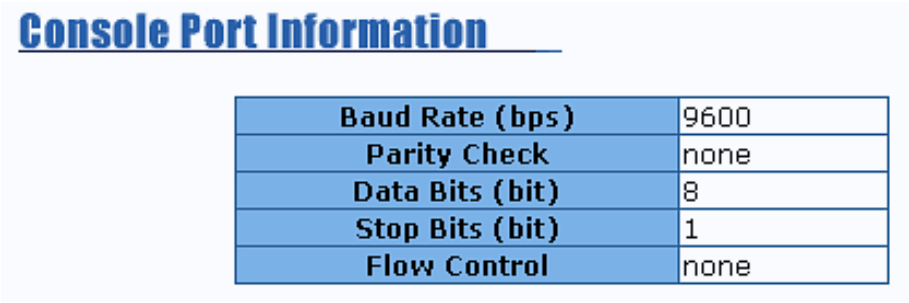

Switch Misc Config setting interface

## Console Port Information

Console is a standard UART interface to communicate with Serial Port. User can use windows HyperTerminal program to link the switch. Please refer to **Console Management → Console login** for detail steps.

Console port information shows as follow:

- **Bits per seconds:** 9600
- **Data bits:** 8
- **Parity:** none
- **Stop Bits:** 1
- **Flow control:** none



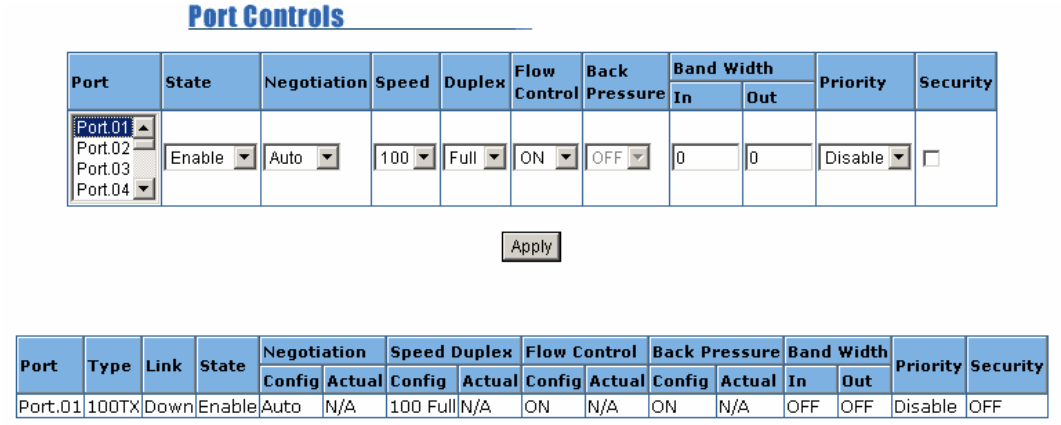

Console Port Information interface

## Port Controls

You can change the port status.

1. Select the port by scroll the list in **Port** column.
2. **State:** User can disable or enable this port control.
3. **Negotiation:** User can set auto negotiation mode is Auto, N-way (specify the speed/duplex on this port and enable auto-negotiation), Force of the port.
4. **Speed:** set the speed of each port.
5. **Duplex:** set full-duplex or half-duplex mode of the port.
6. **Flows Control:** set flow control function is **ON** or **OFF** in Full Duplex mode.
7. **Back Pressure:** set Back Pressure is **ON** or **OFF** in Half Duplex mode.

8. **Band Width:** The port1 ~ port 26, supports port ingress and egress rate control. For example, assume port 1 is 10Mbps, users can set it's effective egress rate is 1Mbps, ingress rate is 500Kbps. The switch will perform flow control or Back Pressure to confine the ingress rate to meet the specified rate.
   - **In:** fill in the port effective ingress rate. The valid range is 0 ~ 999. The unit is 100K. 0: disable rate control. 1 ~ 999: valid rate value.
   - **Out:** fill in the port effective egress rate. The valid range is 0~999. The unit is 100K. 0: disable rate control. 1 ~ 999: valid rate value.
9. **Priority:** this static priority based on port, if you set the port is high priority, income frame from this port always high priority frame.
10. **Security:** when the port is in security mode, the port will be "locked" without permission of address learning. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. User can disable the port from learning any new MAC addresses, and then use the static MAC addresses screen to define a list of MAC addresses that can use the secure port.
11. Click Apply button to apply all configuration.
12. When you select the port, you can see port current configure shows in below.




Port Control interface

## Trunking

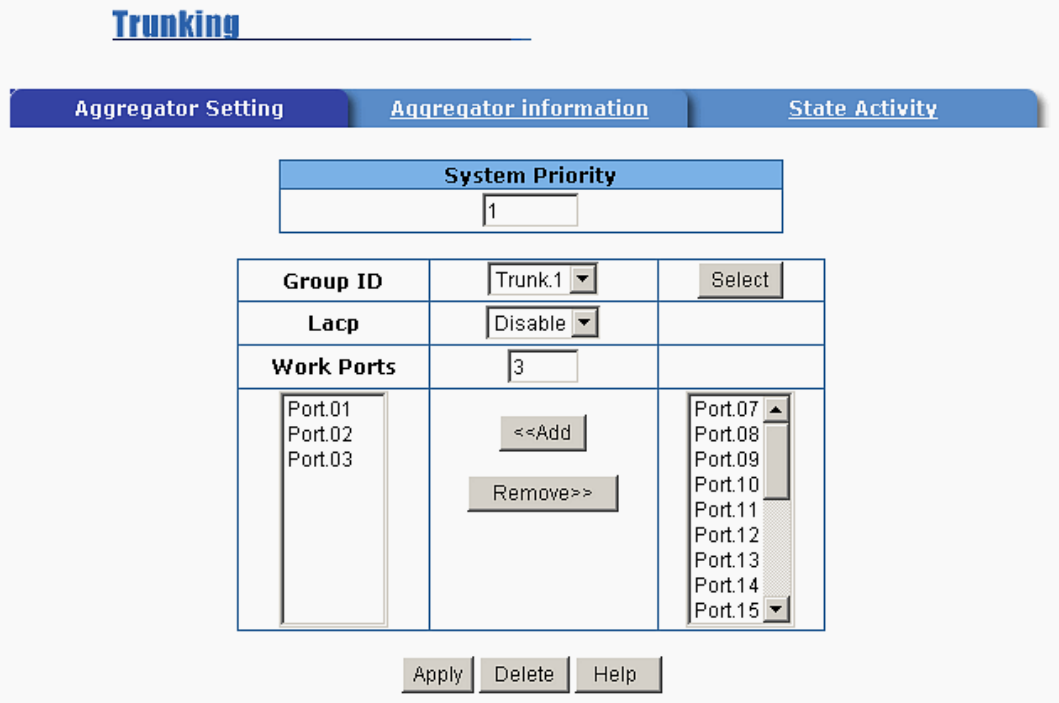
The Link Aggregation Control Protocol (LACP) provides a standardized means for exchanging information between Partner Systems on a link to allow their Link Aggregation Control instances to reach agreement on the identity of the Link Aggregation Group to which the link belongs, move the link to that Link Aggregation Group, and enable its transmission and reception functions in an orderly manner. Link aggregation lets you group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode,** more detail information refers to IEEE 802.3ad.

### Aggregator setting

1. **System Priority:** a value used to identify the active LACP. The switch with the lowest value has the highest priority and is selected as the active LACP.
2. **Group ID:** There are seven trunk groups to provided configure. Choose the "**Group ID**" and click Select.
3. **LACP:** If enable, the group is LACP static trunk group. If disable, the group is local static trunk group. All ports support LACP dynamic trunking group. If connecting to the device that also supports LACP, the LACP dynamic trunking group will be created automatically.
4. **Work ports:** allow max four ports can be aggregated at the same time. If LACP static trunk group, the exceed ports are standby and able to aggregate if work ports fail. If it is local static trunk group, the number must be as same as the group member ports.
5. Select the ports to join the trunk group. Allow max four ports can be aggregated at the same time. Click <<Add button to add the port. To remove unwanted ports, select the port and click Remove>> button.
6. If LACP enable, you can configure LACP Active/Passive status in each ports on State Activity page.

7. Click Apply.

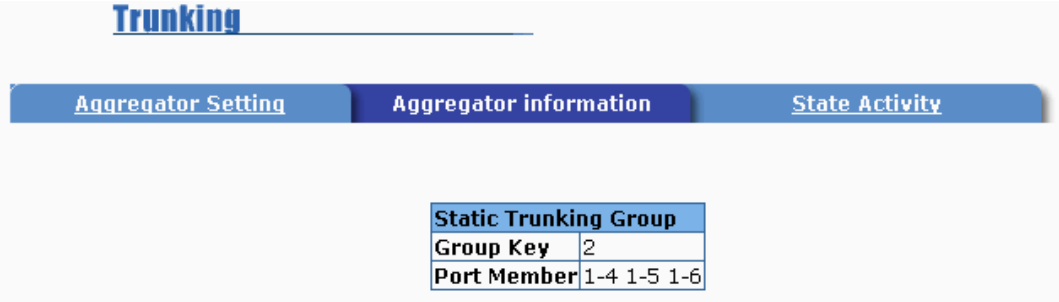
8. Use Delete button to delete Trunk Group. Select the Group ID and click Delete button.




Trunking—Aggregator Setting interface

## Aggregator Information

When you had setup the LACP aggregator, you will see relation information in here.




Trunking – Aggregator Information interface

## Aggregator State Activity

When you had setup the LACP aggregator, you can configure port state activity. You can mark or un-mark the port. When you mark the port and click Apply button the port state activity will change to **Active**. Opposite is **Passive**.

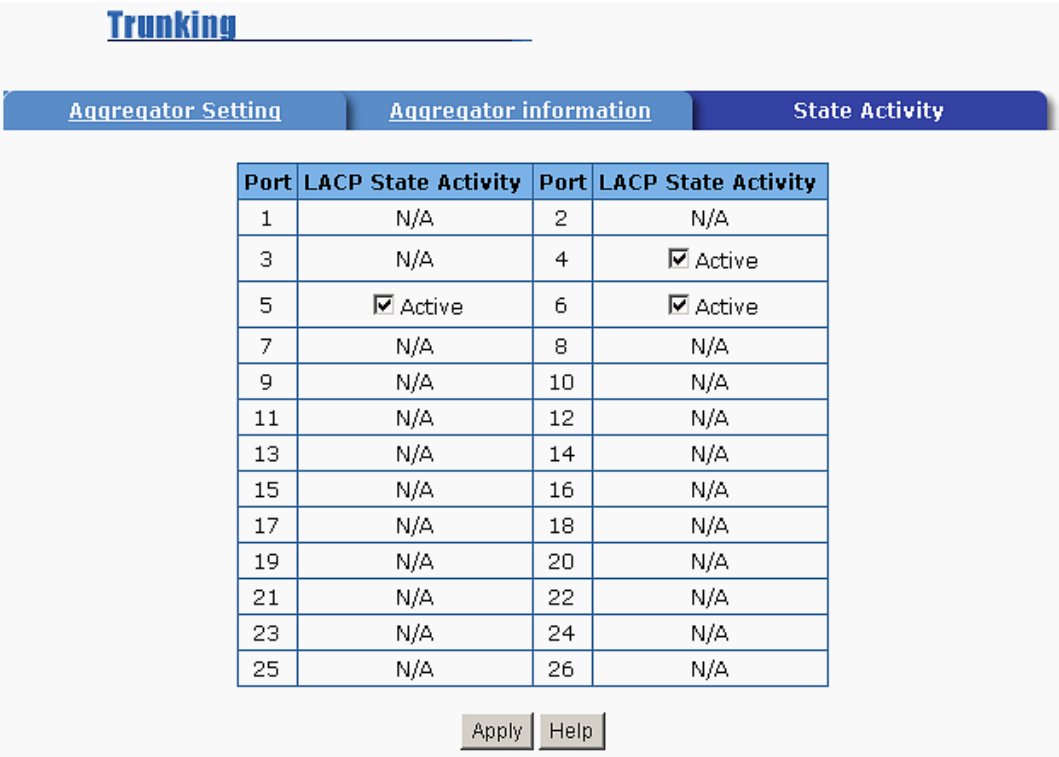
1. **Active:** The port automatically sends LACP protocol packets.
2. **Passive:** The port does not automatically send LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.

---

**[Note]**

1. A link having either two active LACP ports or one active port can perform dynamic LACP trunking.
2. A link has two passive LACP ports will not perform dynamic LACP trunking because both ports are waiting for and LACP protocol packet from the opposite device.
3. If you are active LACP's actor, when you are select trunking port, the active status will be created automatically.

---




Trunking – State Activity interface

## Forwarding and Filtering

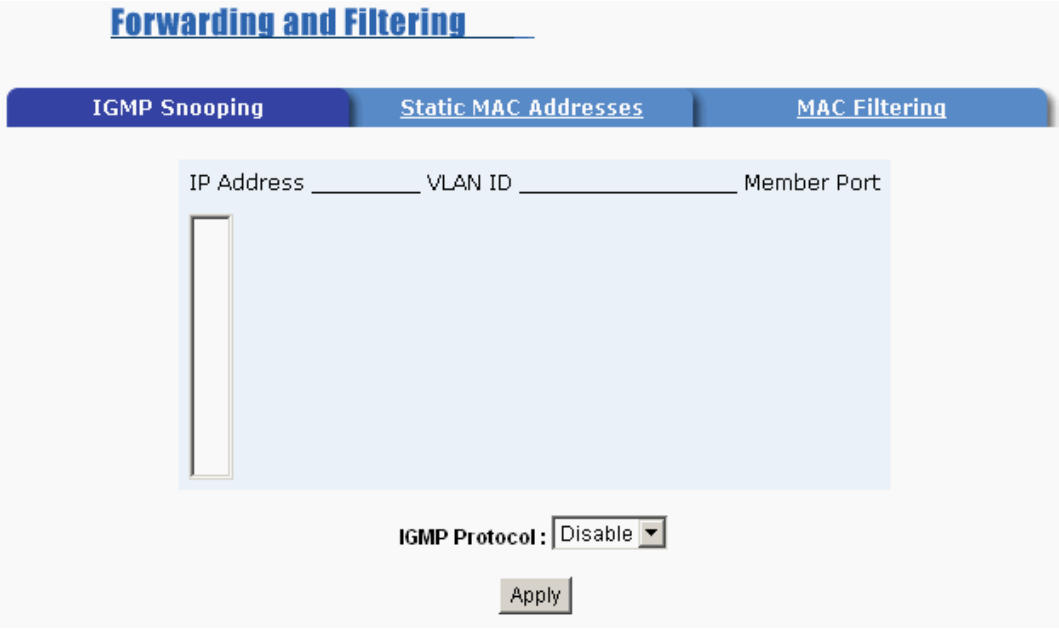
### IGMP Snooping

The switch support IP multicast, you can enable IGMP protocol on web management's switch setting advanced page, then display the IGMP snooping information in this page, you can view difference multicast group VID and member port in here, IP multicast addresses range from 224.0.0.0 through 239.255.255.255.

The Internet Group Management Protocol (IGMP) is an internal protocol of the Internet Protocol (IP) suite. IP manages multicast traffic by using switches, routers, and hosts that support IGMP. Enabling IGMP allows the ports to detect IGMP queries and report packets and manage IP multicast traffic through the switch. IGMP have three fundamental types of message as follows:

| Message | Description |
|---|---|
| **Query** | A message sent from the querier (IGMP router or switch) asking for a response from each host belonging to the multicast group. |
| **Report** | A message sent by a host to the querier to indicate that the host wants to be or is a member of a given group indicated in the report message. |
| **Leave Group** | A message sent by a host to the querier to indicate that the host has quit to be a member of a specific multicast group. |

When you enable the IGMP Snooping, you will see the relate information show as following figure.

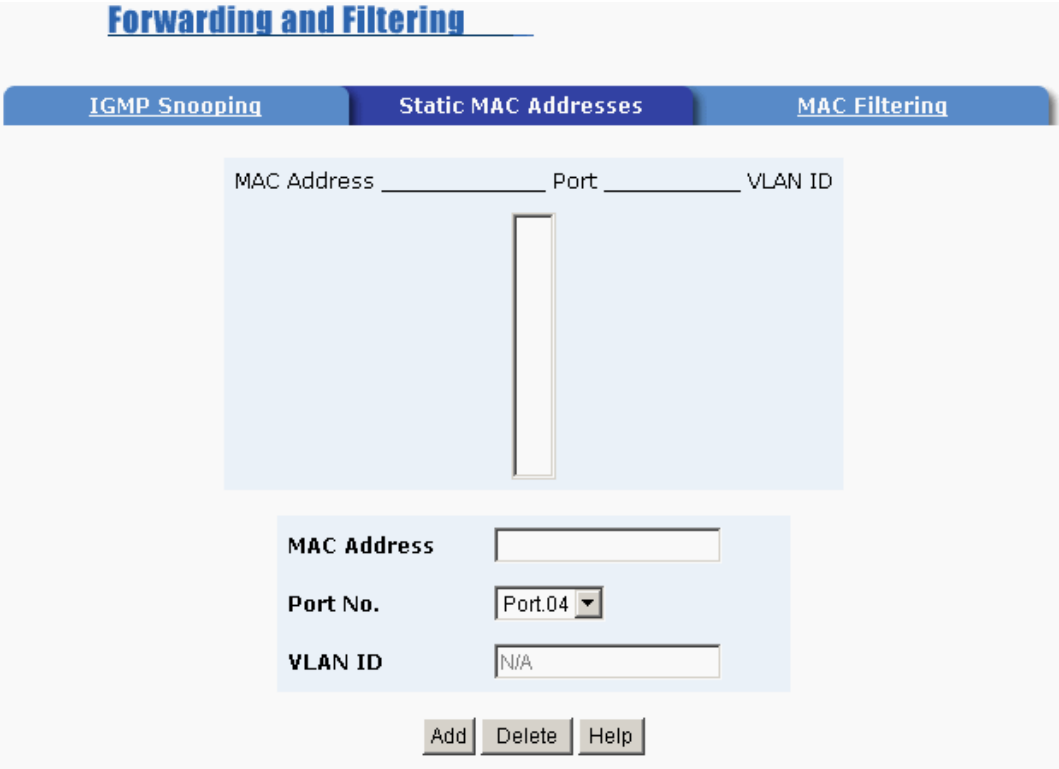



IGMP Snooping interface

## Static MAC Address

When you add a static MAC address, it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again.

1. **MAC Address:** enter the MAC address to and from which the port should permanently forward traffic, regardless of the device network activity.
2. **Port Number:** select a port number.
3. **VLAN ID:** If tag-based (IEEE 802.1Q) VLANs are set up on the switch, static addresses are associated with individual VLANs. Type the VID (tag-based VLANs) to associate with the MAC address.
4. Click Add button.
5. Use Delete button to delete unwanted MAC address.

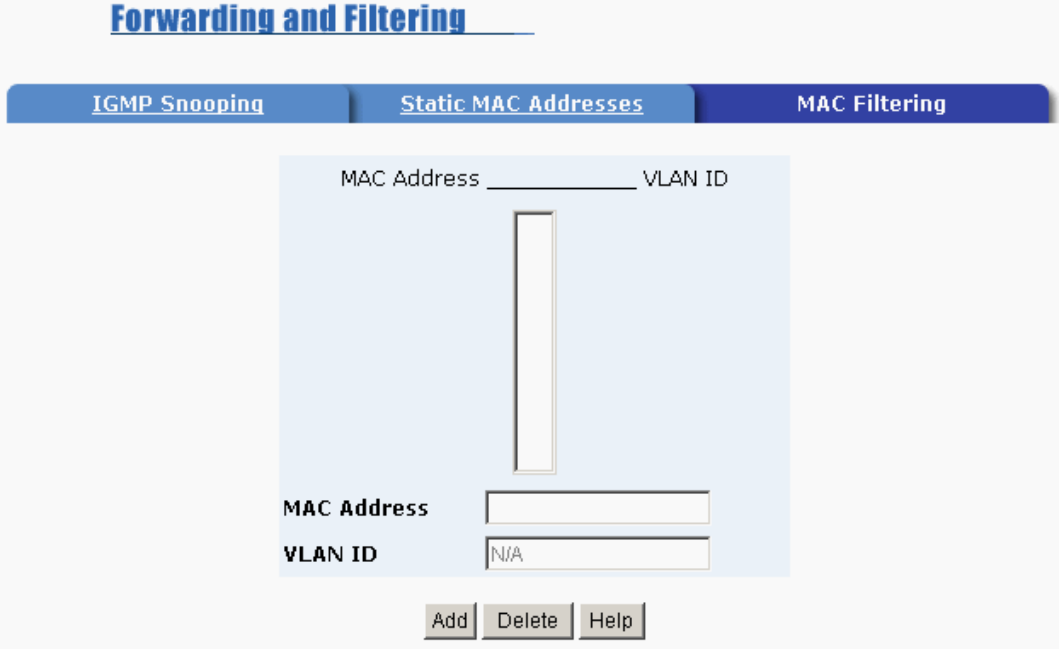



Static MAC Address interface

### MAC filtering

MAC address filtering allows the switch to drop unwanted traffic. Traffic is filtered based on the destination addresses.

1. In **MAC Address** box, enter the MAC address that wants to filter.
2. **VLAN ID:** If tag-based (802.1Q) VLAN are set up on the switch, in the VLAN ID box, type the VID to associate with the MAC address.
3. Click Add button.
4. Use Delete button to delete unwanted MAC address.




MAC Filtering interface

## VLAN configuration

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain. It allows you to isolate network traffic so only members of the VLAN receive traffic from the

same VLAN members. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plug into the same switch physically.

The switch supports port-based, 802.1Q (tagged-based) and protocol-base VLAN in web management page. In the default configuration, VLAN support is “disable”.

---

**[Note]** In order to make an effective change to a VLAN mode, you have to reboot the switch to apply new settings.

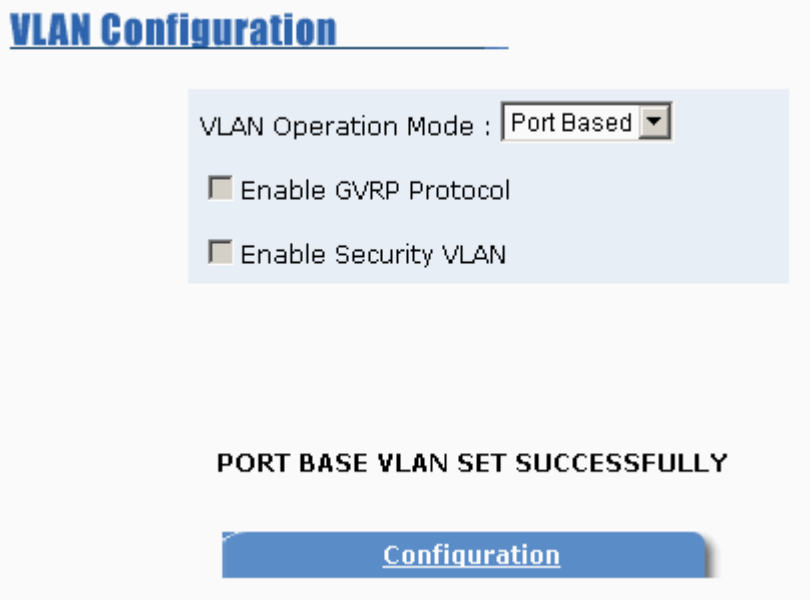
---

Port-based VLAN

Packets can go among only members of the same VLAN group. Note all unselected ports are treated as belonging to another single VLAN. If the port-based VLAN enabled, the VLAN-tagging is ignored.

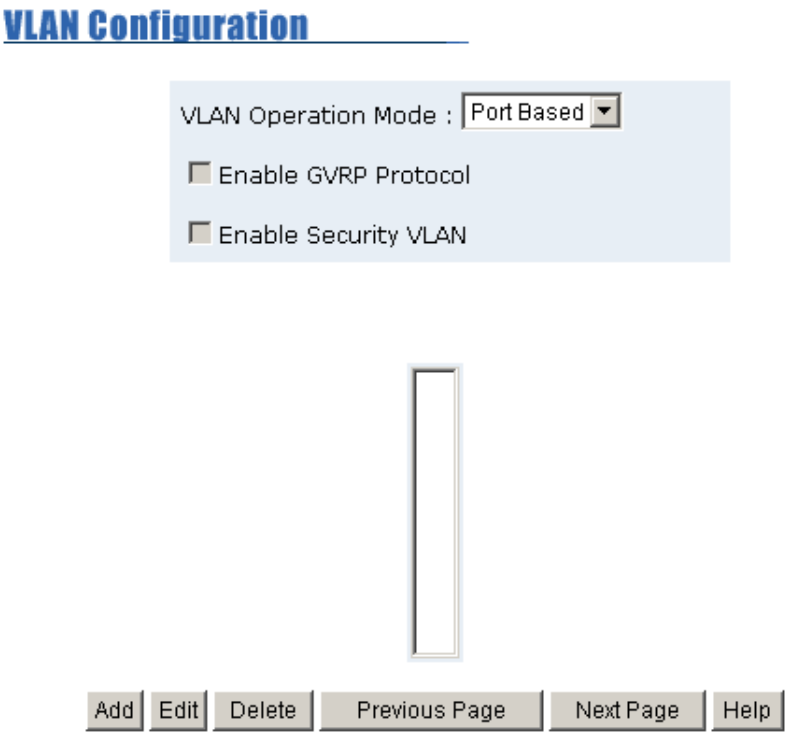
In order for an end station to send packets to different VLANs, it itself has to be either capable of tagging packets it sends with VLAN tags or attached to a VLAN-aware bridge that is capable of classifying and tagging the packet with different VLAN ID based on not only default PVID but also other information about the packet, such as the protocol.

1. Click the hyperlink "**Configuration**" to enter the VLAN configuration interface.



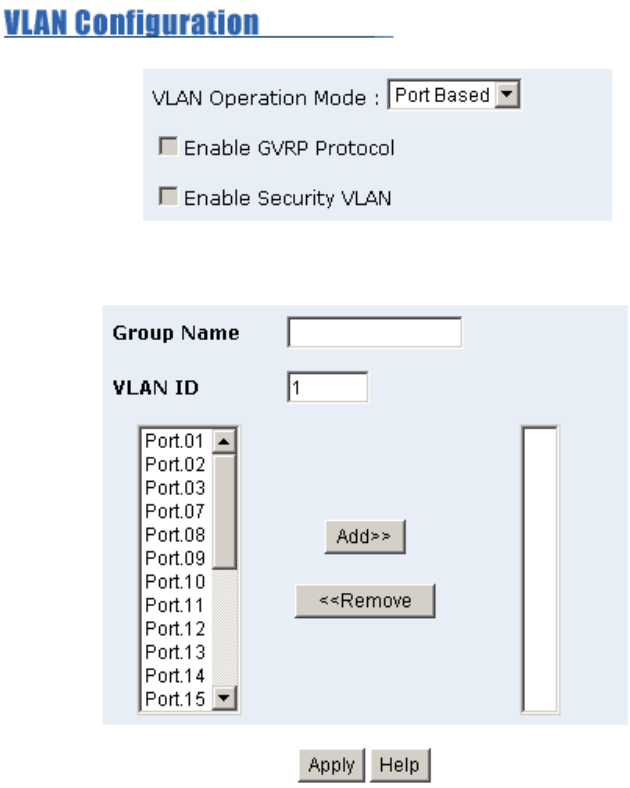

VLAN – PortBase interface

2. Click Add to create a new VLAN group.




VLAN—PortBase Add interface

3. Enter the VLAN name, VLAN ID and select the members for the VLAN group.
4. Click Apply.




5. You will see the VLAN displays.
6. If there are many groups that over the limit of one page, you can click Next Page to view other VLAN groups.
7. Use Delete button to delete unwanted VLAN.
8. Use Edit button to modify existing VLAN group.

---

**[Note]** If the trunk groups exist, you you can configure them as members of the VLAN.

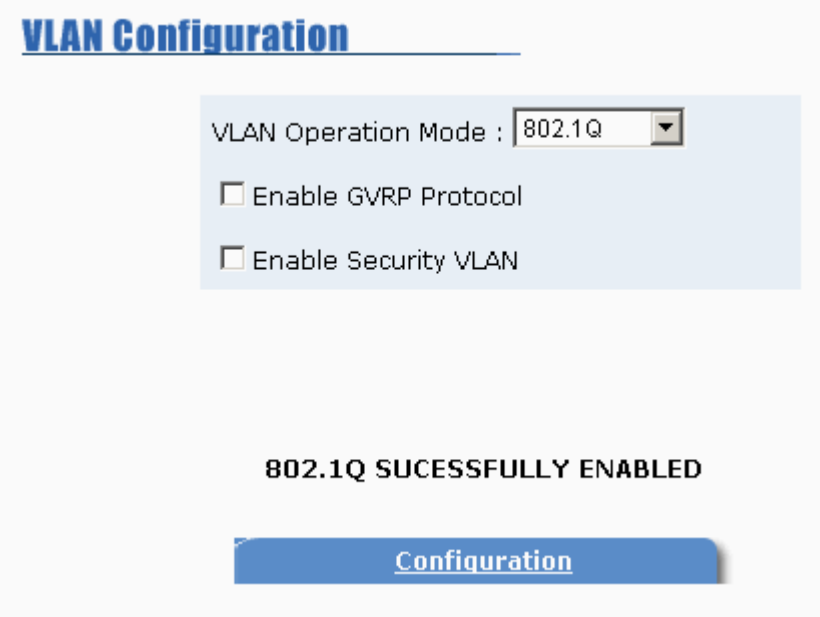
---

### 802.1Q VLAN

Tagged-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch venders. IEEE 802.1Q VLAN uses a technique to insert a “tag” into the Ethernet frames. Tag contains a VLAN Identifier (VID) that indicates the VLAN numbers.

You can create Tag-based VLAN, and enable or disable GVRP protocol. There are 256 VLAN groups to provide configure. Enable 802.1Q VLAN, the all ports on the switch belong to default VLAN, VID is 1. The default VLAN can't be deleting.

GVRP allows automatic VLAN configuration between the switch and nodes. If the switch is connected to a device with GVRP enabled, you can send a GVRP request using the VID of a VLAN defined on the switch; the switch will automatically add that device to the existing VLAN.




802.1q VLAN interface

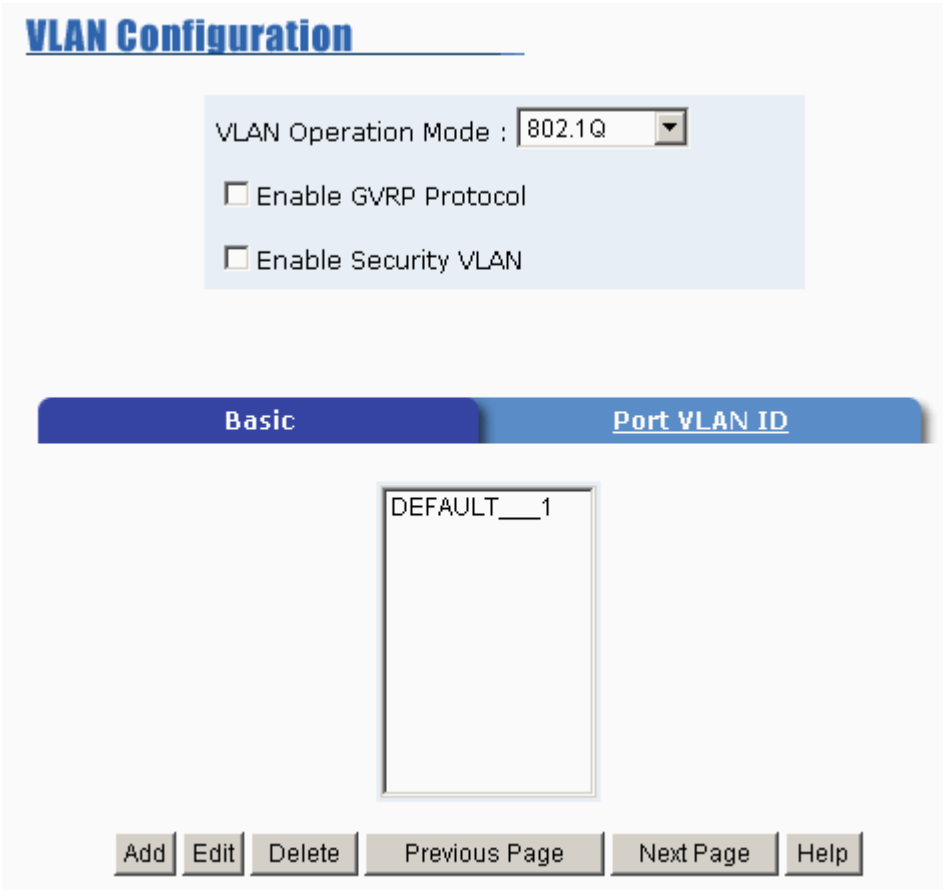
- Click the hyperlink "**Configuration**" to enter the VLAN configuration interface.
- **Enable GVRP Protocol:** checked the box to enable GVRP protocol.
- **Enable security VLAN setting:** checked the box to enable security VLAN group. When you select to enable security VLAN group, only the members in this VLAN group can access to the switch. The steps of setting security VLAN refer to the following below steps in **Basic** section. After you have configured the security VLAN group, you can continue to create other VLAN groups.

---

**[Note]** There is only one security VLAN group.

- **Basic**

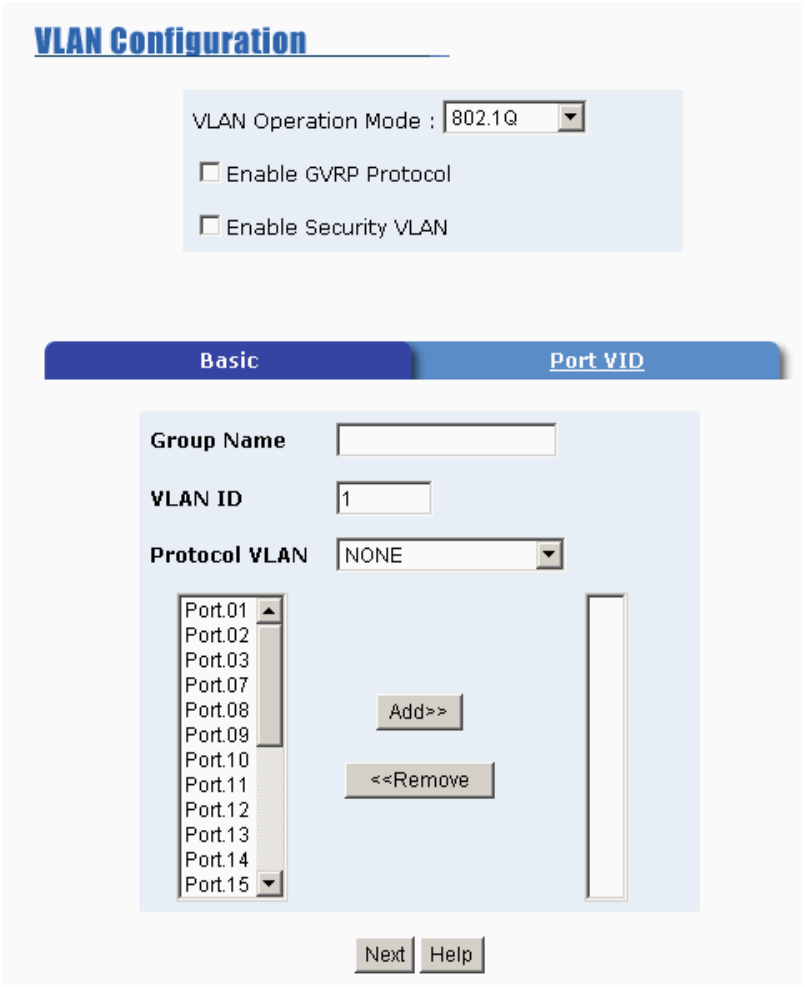
1. Click Add button.



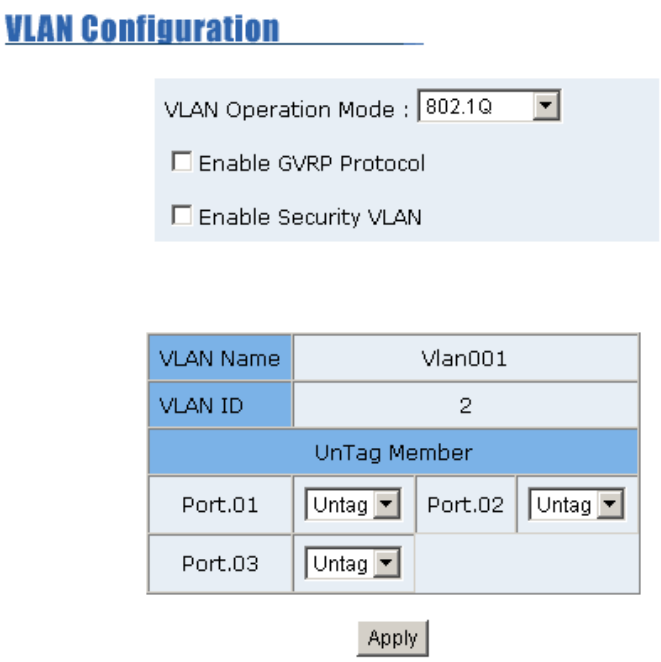

802.1q VLAN –Add interface

2. **Group Name:** assign a name for the new VLAN.
3. **VLAN ID:** fill in a VLAN ID (between 2-4094). The default is 1.
4. **Protocol VLAN:** choose the protocol type. Default is NONE.
5. From the Available ports box, select ports to add to the switch and click Add button.

   If the trunk groups exist, you can see it in here (ex: TRK1, TRK2…), and you can configure it is the member of the VLAN or not.




6. Click Next. Then you will see the page as follow.

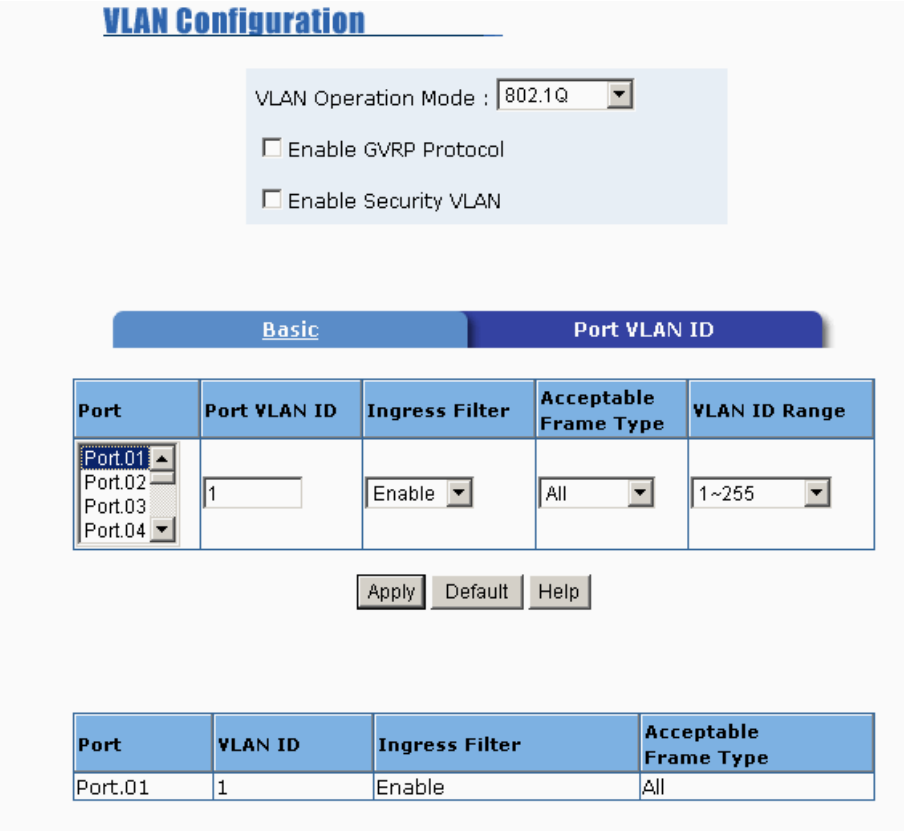



7. To set the outgoing frames are VLAN-Tagged frames or untagged. Then click Apply.
   - Tag: outgoing frames with VLAN-Tagged.
   - Untag: outgoing frames without VLAN-Tagged.

- **Port VID:** Configure port VID settings

1. **VLAN ID:** set the port VLAN ID that will be assigned to untagged traffic on a given port. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging. The switch each port allows user to set one VLAN ID, the range is 1~255, default VLAN ID is 1. The VLAN ID must as same as the VLAN ID that the port belong to VLAN group, or the untagged traffic will be dropped.
2. **Ingress Filtering:** Ingress filtering lets frames belonging to a specific VLAN to be forwarded if the port belongs to that VLAN.
   - **Enable**: Forward only packets with VID matching this port's configured VID.
   - **Disable**: Disable Ingress filter function

3. **Acceptable Frame type:**
   - **ALL:** Acceptable all Packet
   - **Tag Only:** Only packet with match VLAN ID can be permission to go through the port.
4. Click Apply.



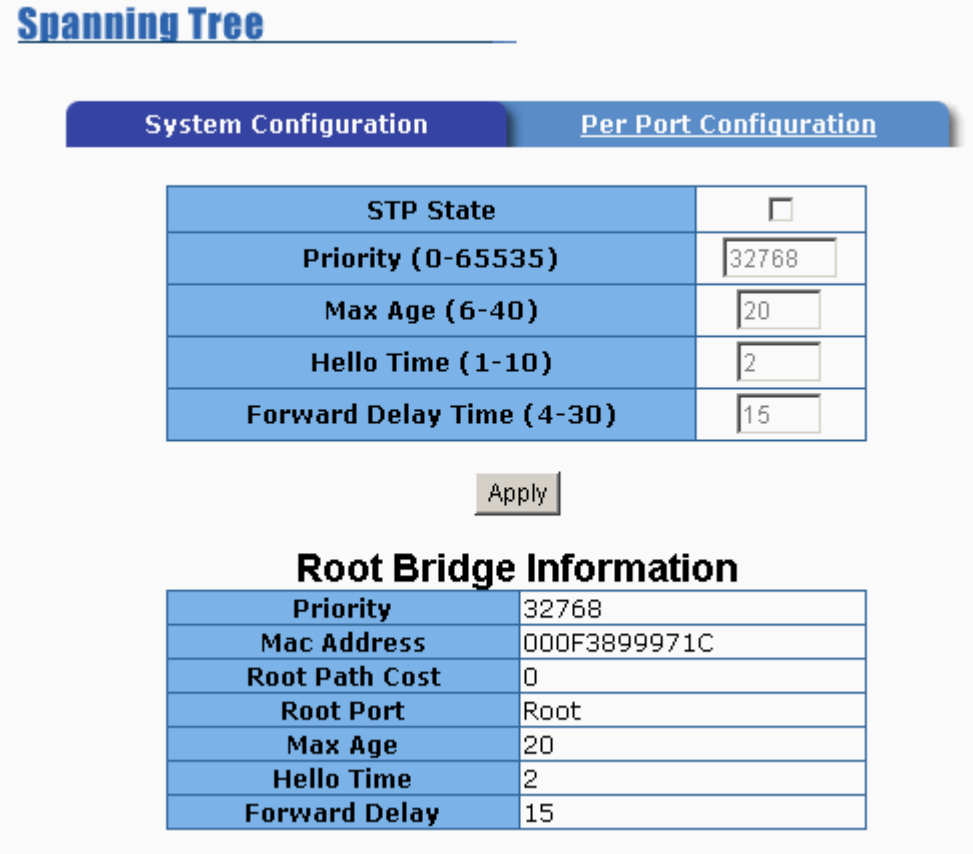

802.1q VLAN – Port VLAN ID interface

## Spanning Tree

The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1d) for avoiding loops in switched networks. When STP enabled, to ensure that only one path at a time is active between any two nodes on the network. We are recommended that you enable STP on all switches ensures a single active path on the network.

## System Configuration

1. You can view spanning tree information about the Root Bridge.
2. You can view spanning tree status about the switch.
3. You can modify STP state. After modification, click Apply button.
   - **Priority:** assign path priority number.
   - **Max Age:** the maximum path age
   - **Hello Time:** the time that controls switch sends out the BPDU packet to check STP current status.
   - **Forward Delay Time:** forward delay time.

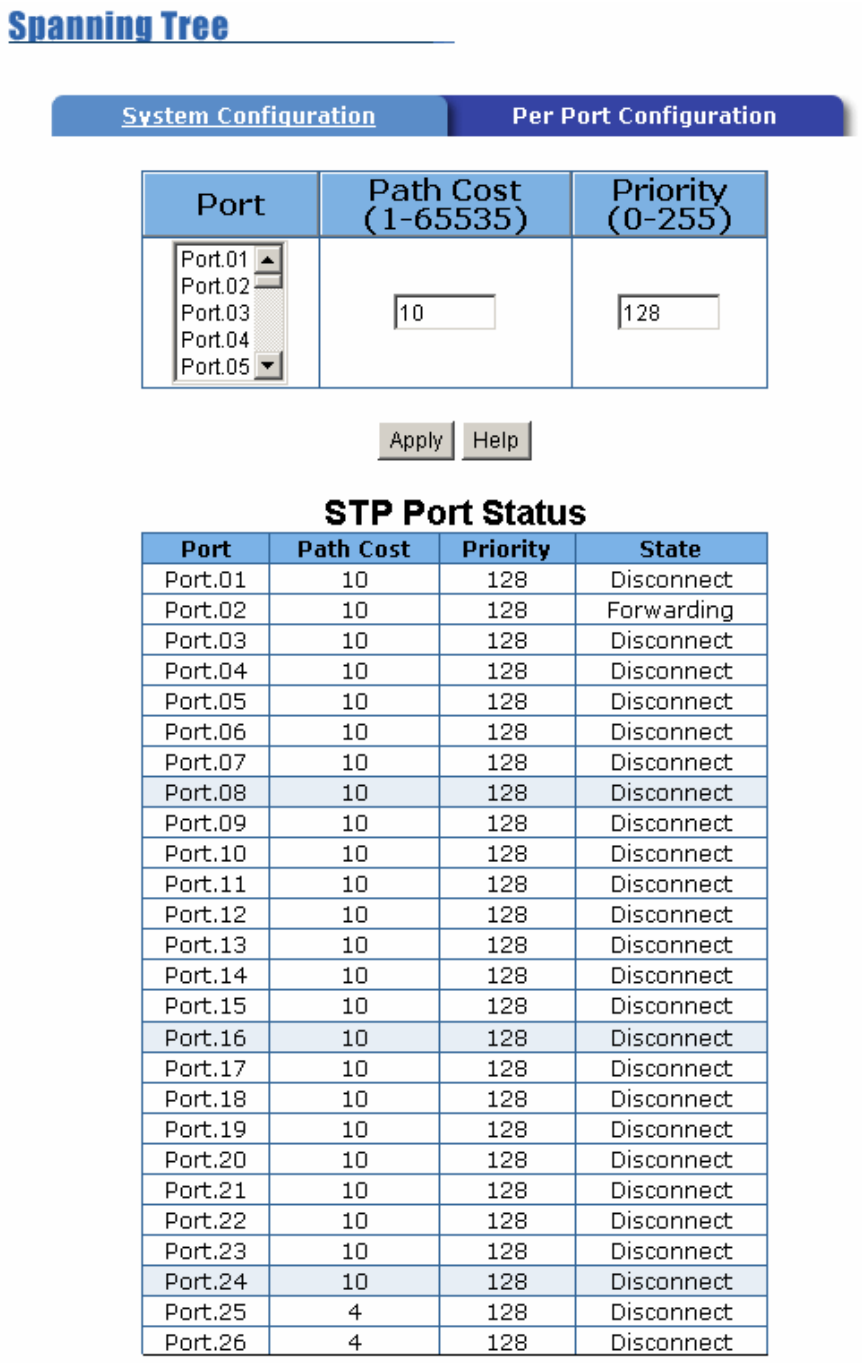



Spanning Tree – System Configuration interface

## Per Port Configuration

You can configure path cost and priority of every port.

1. Select the port in Port column.
2. Assign the **Path Cost**. The value range is from 1 to 65535.
3. Assign the **port priority** value. The value range is from 0 to 255. The lowest value has higher priority.
4. Click Apply button.




SPT – Per Port Configuration interface

## Port Mirroring

The Port mirroring is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That is, traffic goes in or out monitored ports

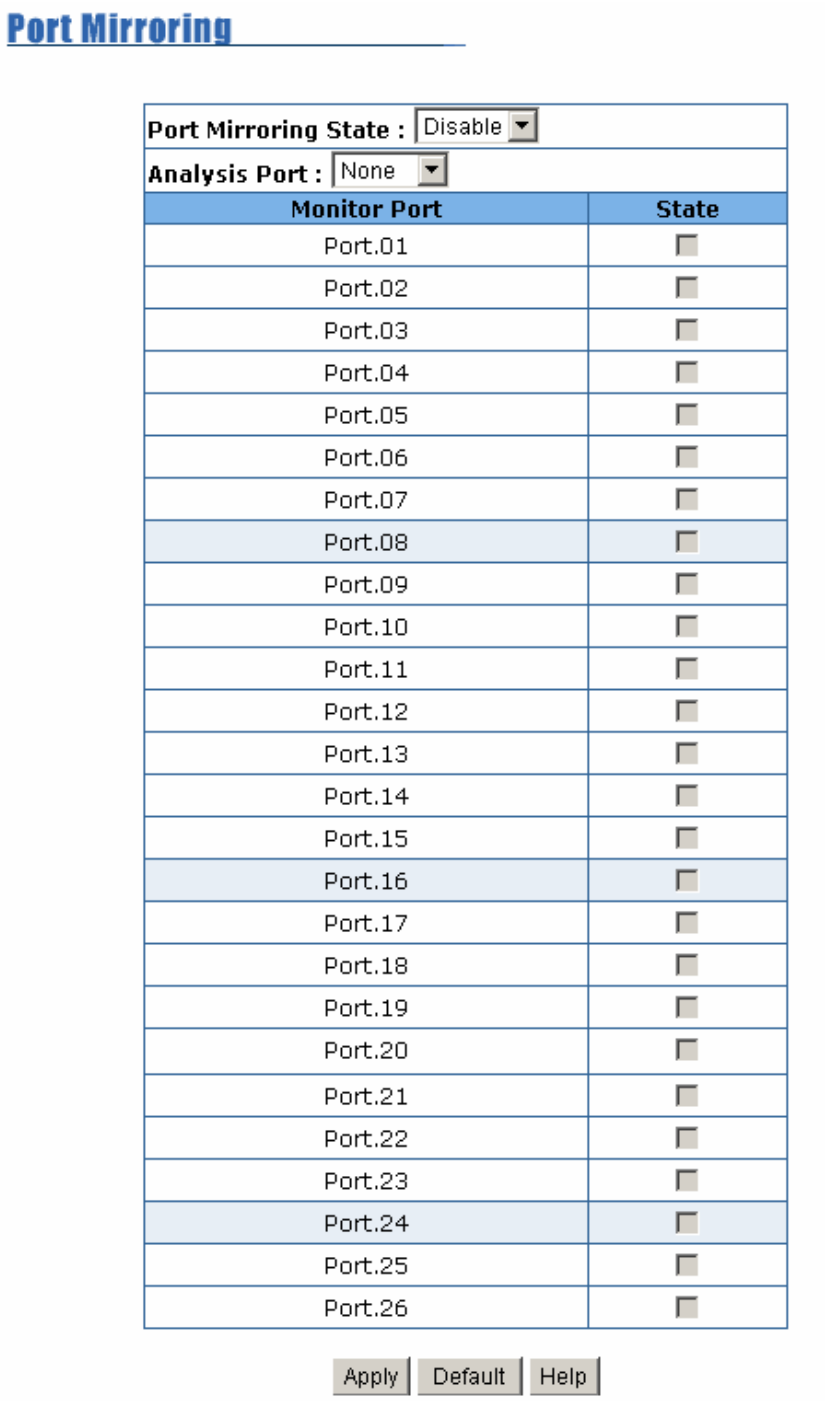
will be duplicated into mirror port.

1. **Port Mirroring State:** set mirror mode: Disable, RX, TX, and Both.
2. **Analysis Port:** It's mean mirror port can be used to see all monitor port traffic. You can connect mirror port to LAN analyzer or netxray.
3. **Monitor Port:** the ports you want to monitor. All monitor port traffic will be copied to mirror port. You can select max 25 monitor ports in the switch. User can choose which port want to monitor in only one mirror mode.

---

**[Note]** If you want to disable the function, you must select monitor port to none.

---




Prot Mirroring interface

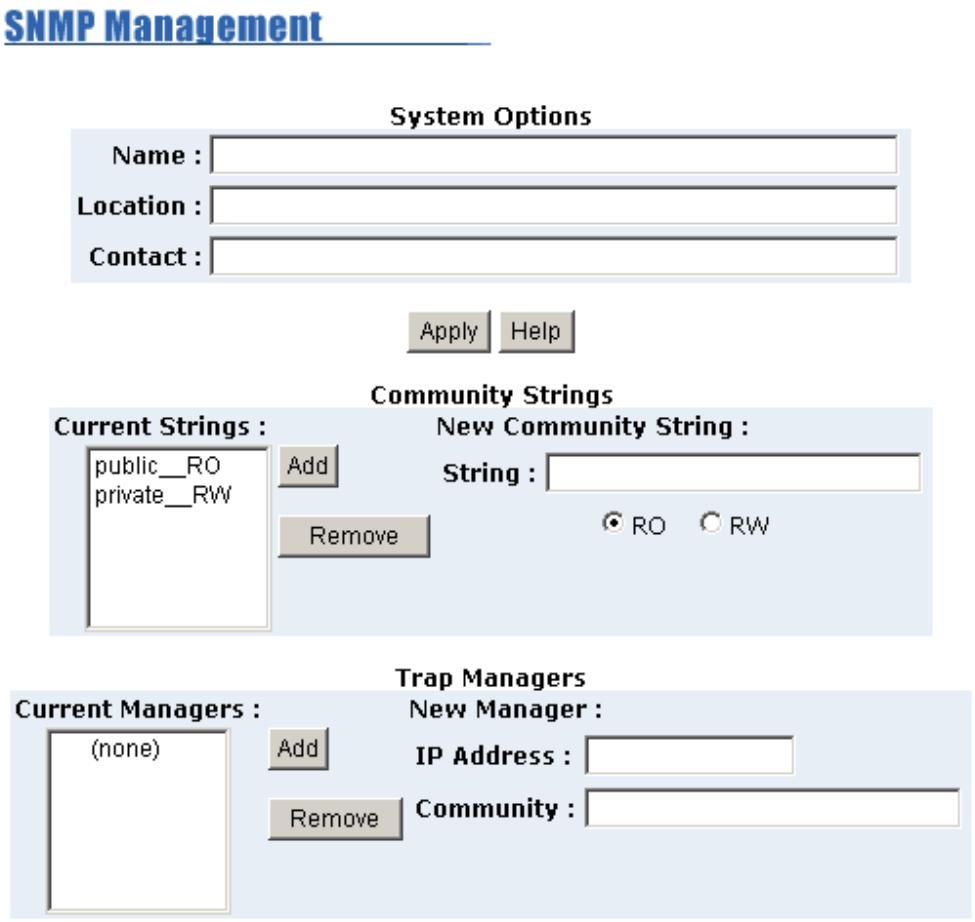
## SNMP Management

The SNMP is a Protocol that governs the transfer of information between management and agent. The switch supports SNMP V1.

You can define management stations as trap managers and to enter SNMP community strings. You also can define a name, location, and contact person for the switch. Fill in the system options data, and then click Apply to update the changes.

- **System Options**

1. **Name:** enter a name for the switch.
2. **Location:** enter the switch physical location.
3. **Contact:** enter the name of contact person or organization.




SNMP Management interface

- **Community strings:** serve as password

1. **Strings:** fill the name of string.
2. **RO:** Read only. Enables requests accompanied by this string to display MIB-object

information.

3. **RW:** Read write. Enables requests accompanied by this string to display MIB-object information and to set MIB objects.
4. Click Add.

- **Trap Manager**

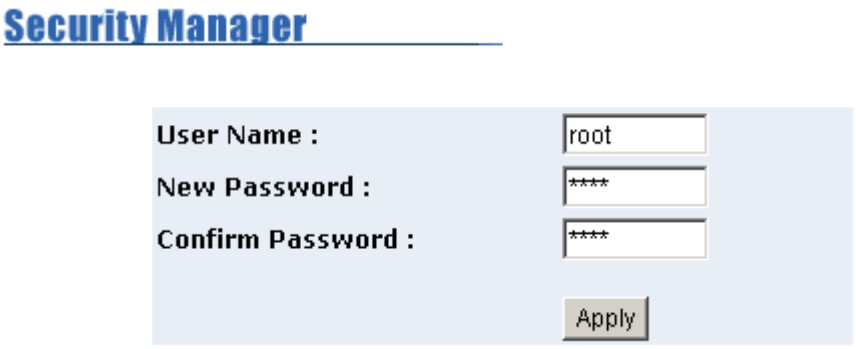
A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps will issue. Create a trap manager by entering the IP address of the station and a community string.

1. **IP Address:** fill in the trap device IP.
2. **Community Strings:** the trap device community strings.
3. Click Add.

## Security Manager

You can change web management login user name and password.

1. **User name:** type the new user name. The default is “root”
2. **New Password:** type the new password. The default is “root”
3. **Confirm password:** retype the new password.
4. Click Apply.

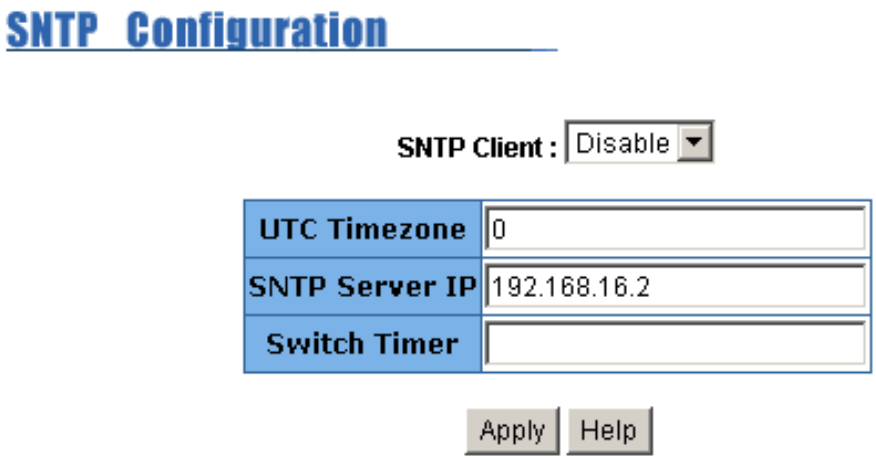



Security Manager interface

## SNTP Configuration

You can configure the SNTP (Simple Network Time Protocol) settings. The SNTP allows you to synchronize switch clocks in the Internet.

- **SNTP Client:** enable or disable SNTP function to get the time from the SNTP server.
- **UTC Timezone:** set the switch location time zone.
- **Server IP:** set the SNTP server IP address.




SNTP Configuration Interface

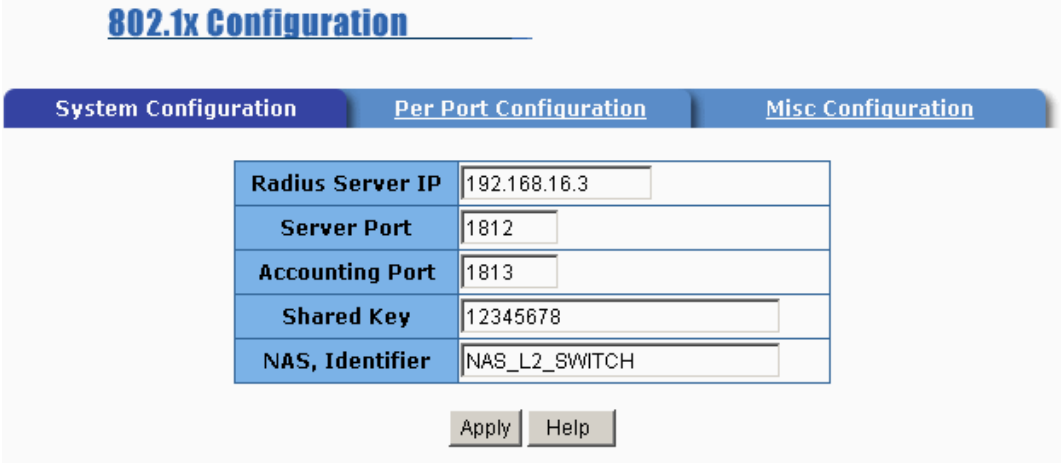
## 802.1X Configuration

When enabling the IEEE 802.1X function, you can configure the parameters of this function. To enable the IEEE 802.1X function, go to **Administrator → Switch Setting → Misc Config**.

### System Configuration

1. **Radius Server IP:** set the Radius Server IP address.

2. **Server Port:** set the UDP destination port for authentication requests to the specified Radius Server.
3. **Accounting Port:** set the UDP destination port for accounting requests to the specified Radius Server.
4. **Shared Key:** set an encryption key for use during authentication sessions with the specified radius server. This key must match the encryption key used on the Radius Server.
5. **NAS, Identifier:** set the identifier for the radius client.
6. Click Apply.




802.1x Configuration – System Configuration interface

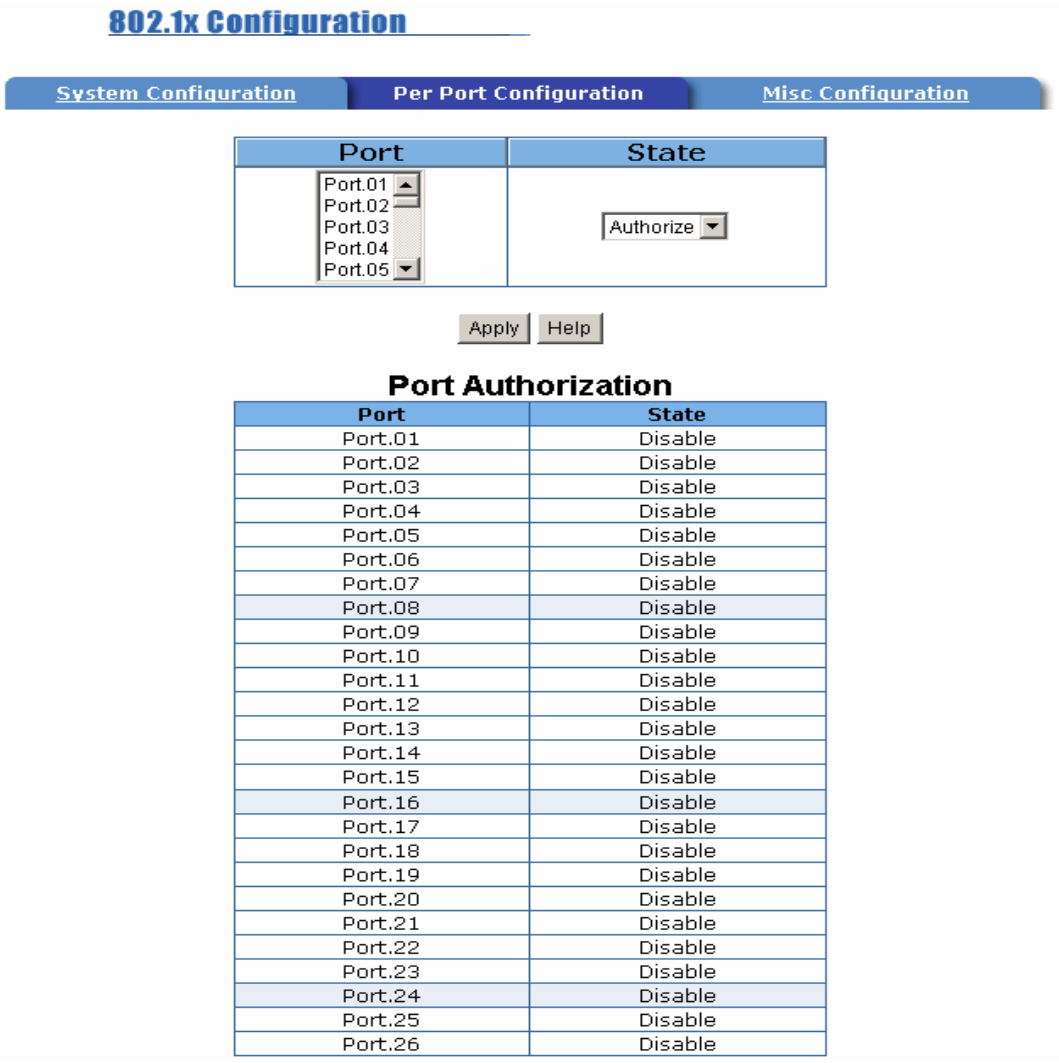
## Per port Configuration

1. Select the port in Port column.
2. Select the state of port. There are four states:
   - **Reject:** the specified port is required to be held in the Unauthorized state.
   - **Accept:** the specified port is required to be held in the Authorized state.
   - **Authorized:** the specified port is set to the Authorized or Unauthorized state in accordance with the outcome of an authentication exchange between the

Supplicant and the authentication server.

- **Disable:** The specified port is required to be held in the Authorized state.

3. Click Apply.
4. You can see the every port Authorization information list in table.



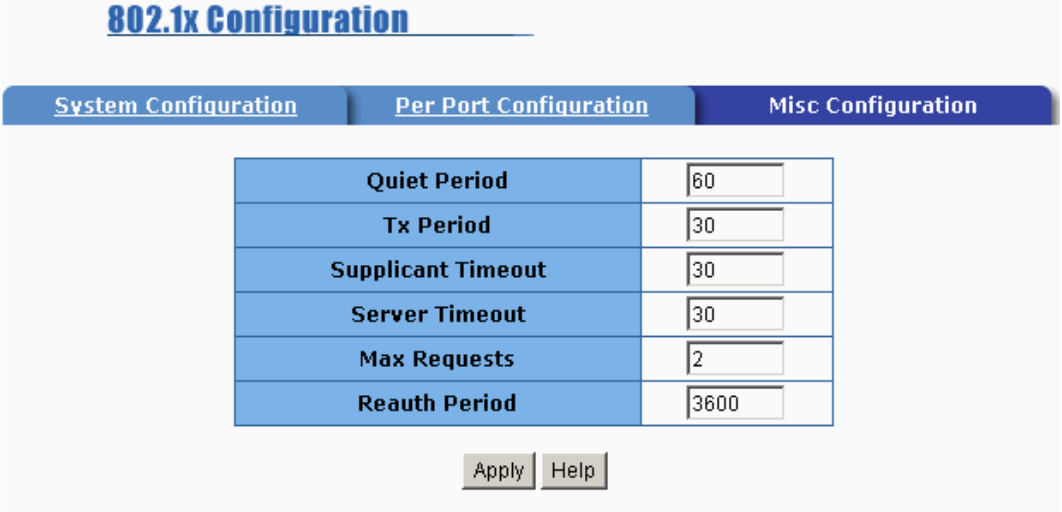

802.1x Configuration – Per Port Configuration

## Misc Configuration

1. **Quiet period:** Set the period during which the port doesn't try to acquire a supplicant.
2. **TX period:** Set the period the port waits to retransmit next EAPOL PDU during an

authentication session.

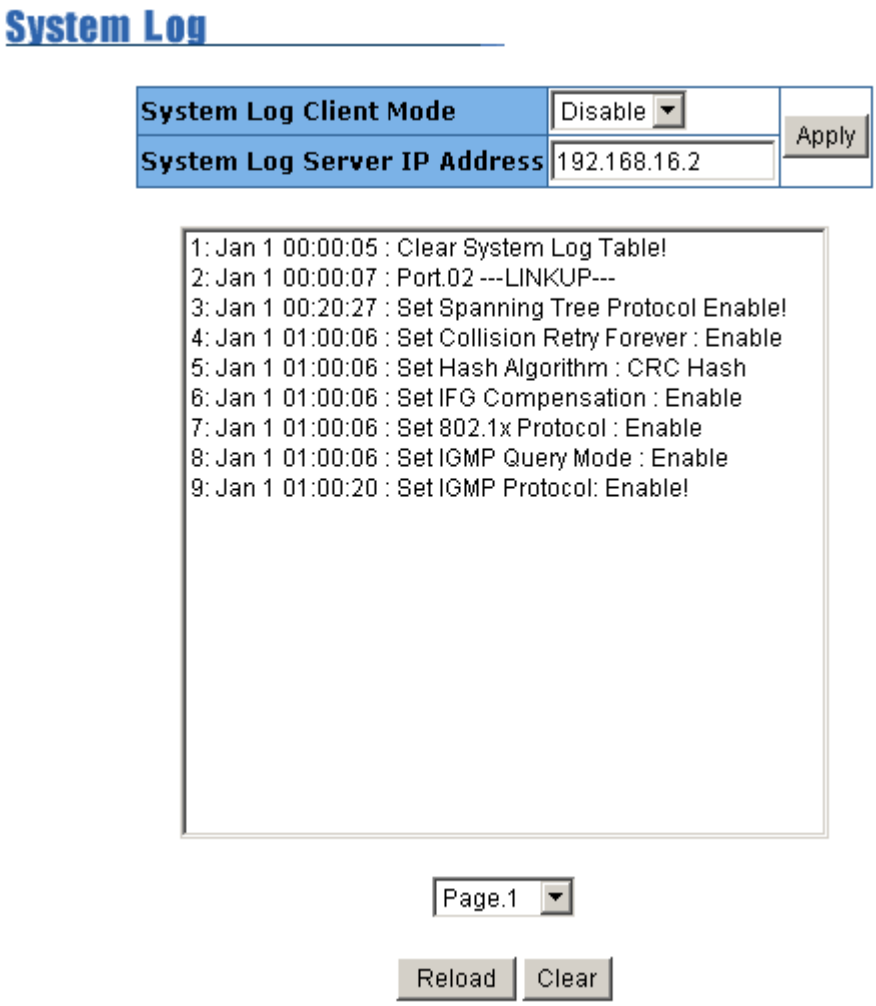
3. **Supplicant timeout:** Set the period of time the switch waits for a supplicant response to an EAP request.
4. **Server timeout:** Set the period of time the switch waits for a server response to an authentication request.
5. **Max requests:** Set the number of authentication that must time-out before authentication fails and the authentication session ends.
6. **Reauth period:** Set the period of time after which clients connected must be re-authenticated.
7. Click Apply.




802.1x Configuration – Misc Configuration interface

## System Log

You can view the system log events in here. Click Reload button to get newest system log event.


System Log
System Log Client Mode
Disable
Apply
System Log Server IP Address
192.168.16.2
1: Jan 1 00:00:05 : Clear System Log Table!
2: Jan 1 00:00:07 : Port.02 ---LINKUP---
3: Jan 1 00:20:27 : Set Spanning Tree Protocol Enable!
4: Jan 1 01:00:06 : Set Collision Retry Forever : Enable
5: Jan 1 01:00:06 : Set Hash Algorithm : CRC Hash
6: Jan 1 01:00:06 : Set IFG Compensation : Enable
7: Jan 1 01:00:06 : Set 802.1x Protocol : Enable
8: Jan 1 01:00:06 : Set IGMP Query Mode : Enable
9: Jan 1 01:00:20 : Set IGMP Protocol: Enable!
Page.1
Reload
Clear

System Log Interface

## Save Configuration

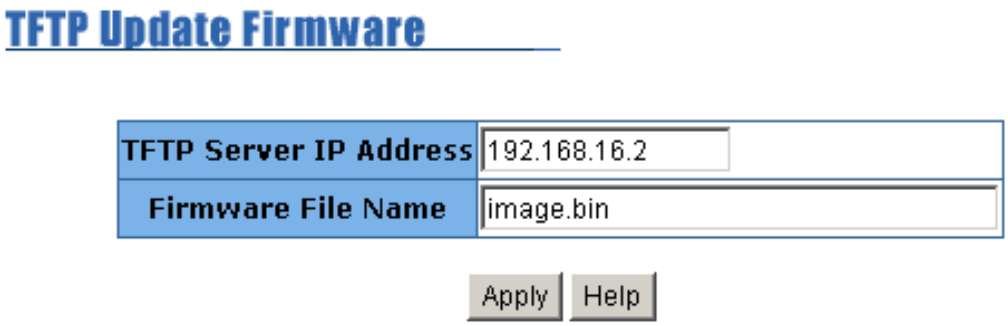
You must save the configuration to the flash memory when you have changed the configuration. Otherwise, the new configuration will be lost when the switch restart or power off. Click the Save Configuration button to save the configuration to the flash memory.

Save Configuration Interface

## TFTP Update Firmware

It provides the functions to allow a user to update the switch firmware. Before updating, make sure you have your TFTP server ready and the firmware image is on the TFTP server.

1. **TFTP Server IP Address:** fill in your TFTP server IP.
2. **Firmware File Name:** the name of firmware image.
3. Click Apply.




TFTP Update Firmware interface

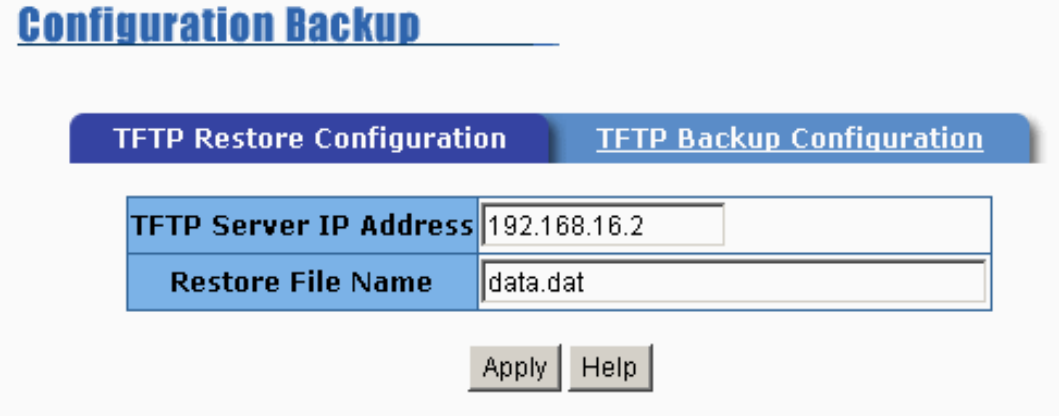
## Configuration Backup

In Configuration Backup, you can restore the backup configuration into the switch. Also, you can backup the configuration to TFTP server.

## TFTP Restore Configuration

You can restore EEPROM value from TFTP server, but you must put back image in TFTP server, switch will download back flash image.

1. **TFTP Server IP Address:** fill in the TFTP server IP.
2. **Restore File Name:** fill in the correct restore file name.
3. Click Apply.

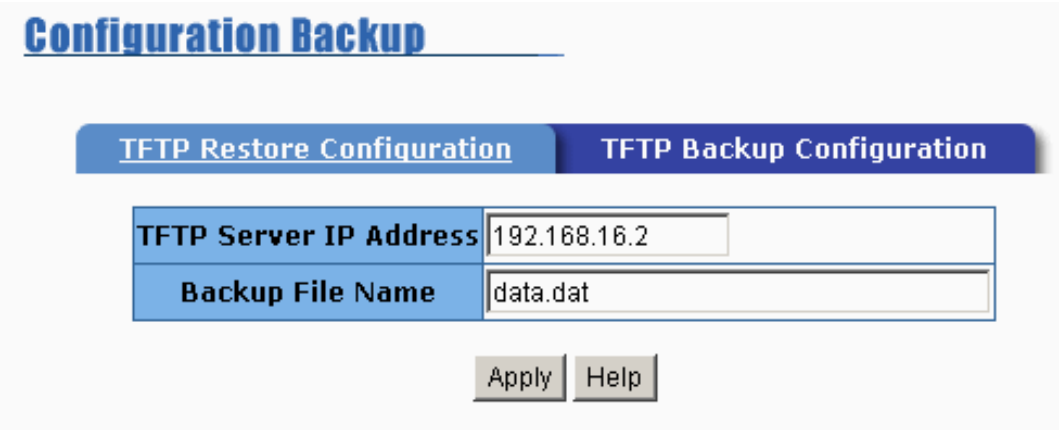



TFTP Restore Configuration interface

## TFTP Backup Configuration

You can save current EEPROM value from the switch to TFTP server, then go to the TFTP restore configuration page to restore the EEPROM value.

1. **TFTP Server IP Address:** fill in the TFTP server IP.
2. **Backup File Name:** fill the file name.
3. Click Apply.

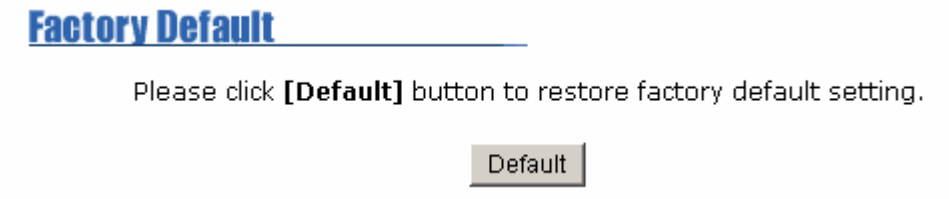



TFTP Backup Configuration interface

## Factory Default

Reset Switch to default configuration, default value to as following configuration:

- **Default IP address:** 192.168.16.1
- **Default Gateway:** 192.168.16.254
- **Subnet mask:** 255.255.255.0
- The other setting value is back to disable or none.
- Click Default button to reset switch to default setting.




Factory Default interface

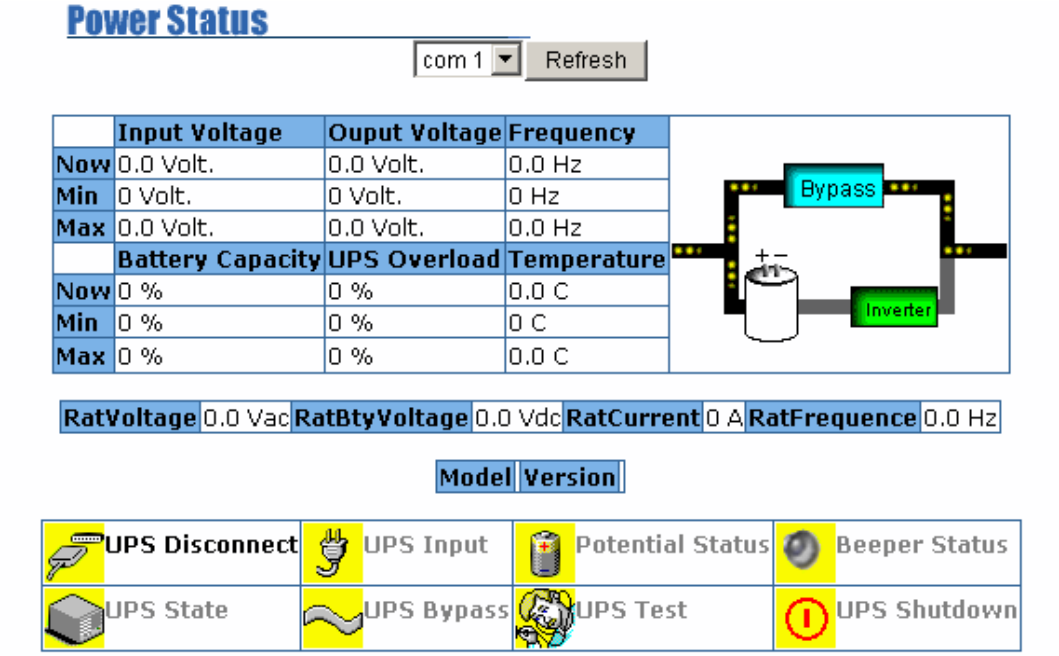
## System Reboot

Reboot the Switch in software reset. Click Reboot button to reboot the switch.

System Reboot interface

## Power Status

You can view connected UPS information and set command to UPS.




Power Status Interface

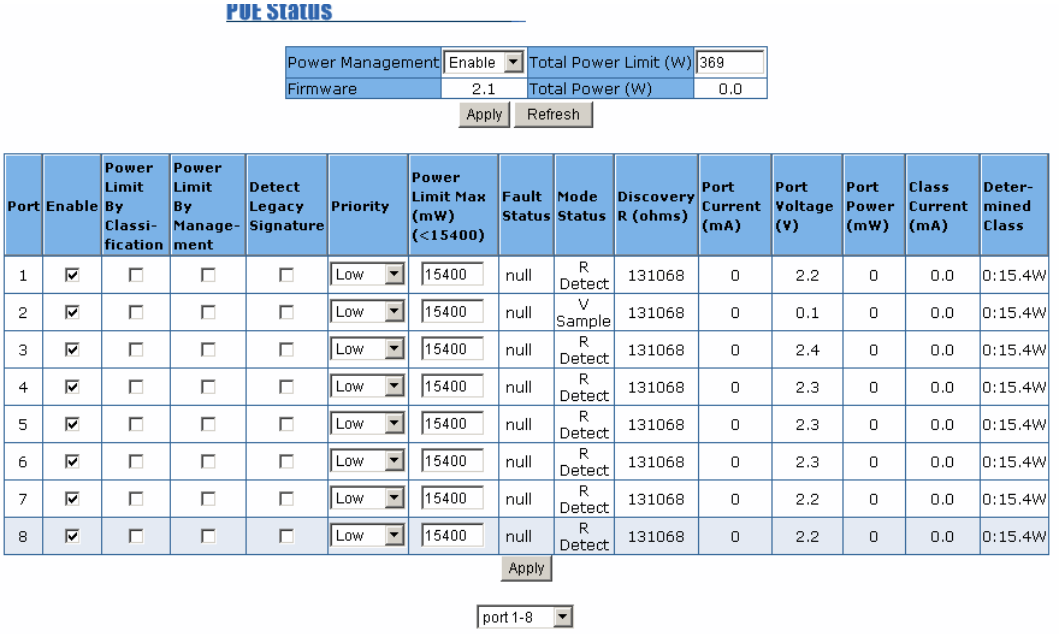
- **UPS information:** the information will be available when the UPS is connected with switch and the connection is normal and UPS is power on status. Click Refresh button to get the newest information.
  - **Input Voltage:** display the current value, minimum, and maximum value of UPS input voltage.

- **Output Voltage:** display the current value, minimum, and maximum value of UPS output voltage.
- **Frequency:** display the frequency value of UPS.
- **Battery Capacity:** display the battery capacity of UPS.
- **UPS Overload:** display the overload capacity of UPS.
- **Temperature:** display the current temperature of UPS.
- **RatVoltage:** range of the UPS voltage.
- **RatBtyVoltage:** range of the UPS battery voltage.
- **RatCurrent:** range of the UPS current.
- **RatFrequency:** range of the UPS frequency.
- **Company Name:** Name of UPS Company.
- **Model:** model name of the UPS.
- **Version:** UPS internal software version.

The figure represents the UPS status, when the status has been detected, the figure color change from yellow to red and the status description will changed.

## POE Status

You can view POE port information and set configuration to each port. Select the port and set configuration and click the Apply button to apply new value. Click the Refresh button to get current POE status.


POE Status
Power Management
Enable
Total Power Limit (W)
369
Firmware
2.1
Total Power (W)
0.0
Apply
Refresh
Port
Enable
Power Limit By Classi-fication
Power Limit By Manage-ment
Detect Legacy Signature
Priority
Power Limit Max (mW) (<15400)
Fault Status
Mode Status
Discovery R (ohms)
Port Current (mA)
Port Voltage (V)
Port Power (mW)
Class Current (mA)
Deter-mined Class
1 Low 15400 null R Detect 131068 0 2.2 0 0.0 0:15.4W
2 Low 15400 null V Sample 131068 0 0.1 0 0.0 0:15.4W
3 Low 15400 null R Detect 131068 0 2.4 0 0.0 0:15.4W
4 Low 15400 null R Detect 131068 0 2.3 0 0.0 0:15.4W
5 Low 15400 null R Detect 131068 0 2.3 0 0.0 0:15.4W
6 Low 15400 null R Detect 131068 0 2.3 0 0.0 0:15.4W
7 Low 15400 null R Detect 131068 0 2.2 0 0.0 0:15.4W
8 Low 15400 null R Detect 131068 0 2.2 0 0.0 0:15.4W
Apply
port 1-8

POE Status Interface

- **Power Management:** Enabling or disabling the POE power management function.
- **Firmware:** display the system firmware version.
- **Total Power Limit:** Set limit value of the total POE port provided power to the PDs.
- **Total Power (W):** total of all the port power that provided to PD.

⊙ **Port:** select the port that you want to configure from the drag down menu in the bottom of the interface.

- **Enable:** enable or disable the port status.
- **Power Limit by Classification:** Enabling or disabling power classification function.
- **Power Limit by Management:** Enabling or disabling the port power limit management for POE power management.
- **Detect Legacy Signature:** The legacy detection is to identify the PD devices that did not follow the IEEE 802.3af standard their unique electrical signatures in order for the PoE switch can provide the power to those PD devices.
- **Priority:** Set port priority for the POE power management. 1 = C (critical), 2 = H

(High), 3 = L (Low).

- **Power Limit Max (mW) (<15400):** Set the power limit value. The maximum value must less 15400.
- **Fault Status:** the PD error status message. There are three error status and explain as following.
  - **Null:** It means there is no PD connected or the connected PD device status is normal.
  - **Overload:** It means the current is over the PD current classification limited (475mA @ 48V DC) that the situation happens over 50msec.
- **Mode Status:** the PD current operation mode status.
  - **V sample or I sample:** It means " Current sample or Voltage sample". When PD is detected and current is supplied, the POE switch will keep detecting and sampling some current or voltage to ensure whether the PD still present on this port. It is an IEEE 802.3af operating procedure.
  - **R detect:** When the port doesn't connect with any PD, the POE switch will poll each port and detects the resistor.
- **Discovery R (ohms):** display resistance value.
- **Port Current (mA):** display current value.
- **Port Voltage (V):** display voltage value.
- **Port Power (W):** display watt value.
- **Class Current (mA):** display power class. When you enable the "Bypass classification" function, the class value will not show in here.
- **Determined Class:** display power class. When you enable the "Bypass classification" function, the class value will not show in here.

# Troubleshooting

This section is intended to help you solve the most common problems on the 24 10/100TX plus 2 SFP/Copper managed POE switch.

## Incorrect connections

The switch port can auto detect straight or crossover cable when you link switch with other Ethernet device. For the RJ-45 connector should use correct UTP or STP cable, 10/100Mbps port use 2 pairs twisted cable. If the RJ-45 connector is not correct pin on right position then the link will fail. For fiber connection, please notice that fiber cable mode and fiber module should be match.

### ■ Faulty or loose cables

Look for loose or obviously faulty connections. If they appear to be OK, make sure the connections are snug. IF that does not correct the problem, try a different cable.

### ■ Non-standard cables

Non-standard and miss-wired cables may cause numerous network collisions and other network problem, and can seriously impair network performance. A category 5-cable tester is a recommended tool for every 100Base-T network installation.

**RJ-45 ports:** use unshielded twisted-pair (UTP) or shield twisted-pair ( STP ) cable for RJ-45 connections: 100Ω Category 3, 4 or 5 cable for 10Mbps connections or 100Ω Category 5 cable for 100Mbps connections. Also be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).

- **Improper Network Topologies**

It is important to make sure that you have a valid network topology. Common topology faults include excessive cable length and too many repeaters (hubs) between end nodes. In addition, you should make sure that your network topology contains no data path loops. Between any two ends nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms that will severely impact your network performance.

## Diagnosing LED Indicators

The Switch can be easily monitored through panel indicators to assist in identifying problems, which describes common problems you may encounter and where you can find possible solutions.

IF the power indicator does turn on when the power cord is plugged in, you may have a problem with power outlet, or power cord. However, if the Switch powers off after running for a while check for loose power connections, power losses or surges at power outlet. IF you still cannot resolve the problem, contact your local dealer for assistance.

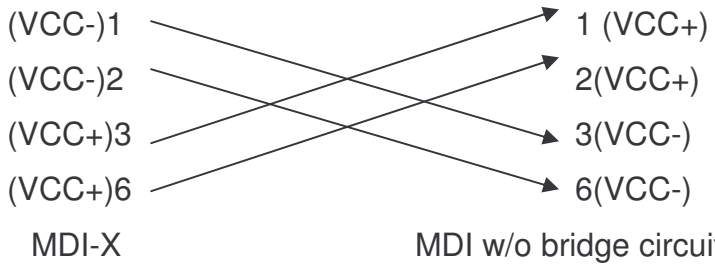
## Diagnosing POE problems

- **No Power Forward**
  - Make sure your PD device comply with IEEE 802.3af standard, the 8 10/100TX plus One Exp. slot unmanaged POE switch only support the IEEE 802.3af compliant PD.
  - The POE switch uses the signal power pair to forward power, the data and the power is traverse the pin. Please, check the documentation for your PD device to

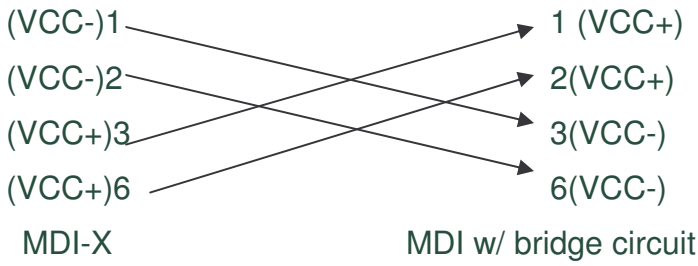
make sure the power pair it uses. The following table is the signal power pair RJ-45 port pinout.

| Pin | Signal / Name |
|---|---|
| 1 | RX+ / VCC - |
| 2 | RX- / VCC - |
| 3 | TX+ / VCC + |
| 4 | NC |
| 5 | NC |
| 6 | TX- / VCC + |
| 7 | NC |
| 8 | NC |

- When the PD device pin out is in MDI mode without bridge circuit function, please use the crossover cable for power and data transmit. Please refer to the above table for the pin out transform.




- When the PD device is in MDI mode with bridge circuit function, the straight forward and crossover cable both workable for power and data transmit. Please refer to the above table for the pin out antithesis.



**OR**

(VCC-)1
(VCC-)2
(VCC+)3
(VCC+)6
1 (VCC-)
2(VCC-)
3(VCC+)
6(VCC+)
MDI-X
MDI w/ bridge circuit

# Technical Specification

This section provides the specifications of 24 10/100TX plus 2 SFP/Copper managed POE switch, and the following table lists these specifications.

| | |
|---|---|
| **Standard** | IEEE802.3 10BASE-T<br>IEEE802.3u 100BASE-TX/100BASE-FX<br>IEEE802.3z Gigabit SX/LX<br>IEE802.3ab Gigabit 1000T<br>IEEE802.3x Flow Control and Back pressure<br>IEEE802.3ad Port trunk with LACP<br>IEEE802.1d Spanning tree protocol<br>IIEEE802.1w Rapid spanning tree protocol<br>IEEE802.1p Class of service<br>IEEE802.1Q VLAN Tagging<br>IEEE 802.1x user authentication<br>IEEE802.3af Power over Ethernet |
| **LED Indicators** | System Power<br>10/100TX RJ-45 Port: Link/Active (Green: 1000Mbps/ Yellow: 10/100Mbps), Full-duplex/collision<br>SFP/ Copper: Link/Activity, Full duplex/collision, 1000Mbps, 100Mbps |
| **Connector** | 10/100TX: 24 x RJ-45<br>Gigabit Copper: 2 x RJ-45<br>2 SFP for SFP transceiver |

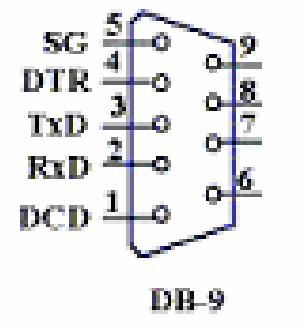
| | |
|---|---|
| **RS-232 connector** | One RS-232 DB-9 female connector for switch management and 2 RS-232 DB-9 male connectors on rear side for DC power supply and UPS management. |
| **Switch architecture** | Store and forward switch architecture. |
| **Back-plane** | Up to 8.8Gbps |
| **MAC address** | 8K MAC address table with Auto learning function |
| **Memory** | 3Mbits for packet buffer |
| **Flash ROM** | 512Kbytes x 2 |
| **System memory** | 8Mbytes x 1 |
| **Dimensions** | 440mm(W) x 280mm(D) x 44mm(H) |
| **Operating environment** | 0℃~40℃, 10%~95%RH |
| **Storage Temp.** | -40ºC to 70ºC (-40ºF to 158ºF) |
| **Remote power feeding** | End-point insert type and compatible with IEEE802.3af<br>Per port feeding power: 15.4Watts (maximum) |
| **Power** | Embedded AC power supply: AC 90~240V, 50/60Hz, 200W; Extra power input: DC48V |
| **Power consumption** | 20 W (maximum) with additional DC power input. |

| | |
|---|---|
| **Ventilation** | 2 DC Fans with detect function |
| **Operating environment** | 0℃~40℃, 10%~95%RH |
| **Storage environment** | -40℃~70℃, 95% RH |
| **EMI** | FCC Class A, CE |
| **Safety** | UL, cUL, CE/EN60950 |

# Appendix

## Console Port Pin Assignments

The DB-9 serial port on the front panel is used to connect to the switch for out-of-band console configuration. The console menu-driven configuration program can be accessed from a terminal or a PC running a terminal emulation program. The pin assignments used to connect to the serial port are provided in the following tables.




DB-9 Console Port Pin Numbers

- **DB-9 Port Pin Assignments**

| EIA Circuit | CCITT Signal | Description | Switch's DB9 DTE Pin # | PC DB9 DTE Pin # |
|---|---|---|---|---|
| BB | 104 | RxD (Received Data) | 2 | 2 |
| BA | 103 | TxD (Transmitted Data) | 3 | 3 |
| AB | 102 | SGND (Signal Ground) | 5 | 5 |

- **Console Port to 9-Pin DTE Port on PC**

| Switch's 9-Pin Serial Port | CCITT Signal PC's 9-Pin | DTE Port |
|---|---|---|
| 2 RXD | <---------RXD ---------- | 3 TxD |

| | | |
|---|---|---|
| 3 TXD | ----------TXD ----------> | 2 RxD |
| 5 SGND | ----------SGND ---------- | 5 SGND |

# Cables

The RJ-45 ports on the switch support automatic MDI/MDI-X operation, so you can use standard straight-through twisted-pair cables to connect to any other network device (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

- **Cable Types and Specifications**

| Cable | Type | Max. Length | Connector |
|---|---|---|---|
| 10BASE-T | Cat. 3, 4, 5100-ohm | UTP 100 m (328 ft) | RJ-45 |
| 100BASE-TX | Cat. 5 100-ohm UTP | 100 m (328 ft) | RJ-45 |
| 1000BASE-SX | 50/125 or 62.5/125 micron core multimode fiber (MMF) | 300/550m | LC |
| 1000Base-LX | 8.3/125 micron single mode (SMF) | 10Km | LC |

Cable specification table

# 100BASE-TX/10BASE-T Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 for receiving data.

- **RJ-45 Pin Assignments**

| Pin Number | Assignment |
|---|---|
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 6 | Rx- |

**Note:** "+" and "-" signs represent the polarity of the wires that make up each wire pair.

All ports on this switch support automatic MDI/MDI-X operation, you can use straight-through cables for all network connections to PCs or servers, or to other switches or hubs. In straight-through cable, pins 1, 2, 3, and 6, at one end of the cable, are connected straight through to pins 1, 2, 3 and 6 at the other end of the cable. The table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

| Pin MDI-X | Signal Name | MDI Signal Name |
|---|---|---|
| 1 | Receive Data plus (RD+) | Transmit Data plus (TD+) |
| 2 | Receive Data minus (RD-) | Transmit Data minus (TD-) |
| 3 | Transmit Data plus (TD+) | Receive Data plus (RD+) |
| 6 | Transmit Data minus (TD-) | Receive Data minus (RD-) |

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